ORDER NO. KM40304063C3

Service Manual

Telephone Equipment

KX-TC1464LCB

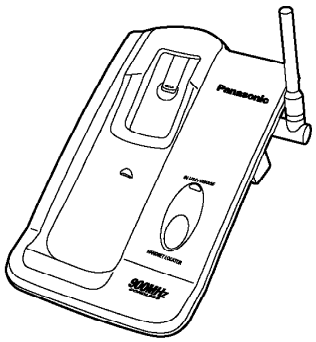
900MHz Cordless Phone

Black Version

(for Peru)

(for Chile)

(Handset)



(Base Unit)

SPECIFICATIONS

SPECIFICATIONS

	Base Unit	Handset
Power Source:	AC Adaptor (PQWATC1461BX)	Rechargeable Ni-Cd Battery
Receiving Frequency:	40 channels within 925.9~927.7MHz	40 channels within 902.1~903.9MHz
Receiving Method.	Double super heterodyne	Double super heterodyne
Transmitting Frequency:	40 channels within 902.1~903.9MHz	40 channels within 925.9~927.7MHz
Oscillation Method:	PLL synthesizer	PLL synthesizer
Detecting Method:	Quadrature Discriminator	Quadrature Discriminator
Tolerance of Frequency:	±10kHz	±10kHz
Modulation Method:	F3 (frequency modulation)	F3 (frequency modulation)
ID Code:	16-bit	16-bit
Dial Mode:	———	Tone (DTMF)/Pulse
Redial:	———	Up to 16 digits
Speed Dialer:	———	Up to 16 digits
Power Consumption:	———	5 days at Standby, 5 hours at Talk
Dimension (H × W × D):	3 1/2" × 5 1/8" × 7 3/32" (89 × 130 × 180)	9 1/4" × 2 5/32" × 1 27/32" (235 × 55 × 47)
Weight	0.57 lbs. (260g)	0.49 lbs. (220g) with battery

Specifications are subject to change without notice.

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF. Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.

When this mark does appear please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.

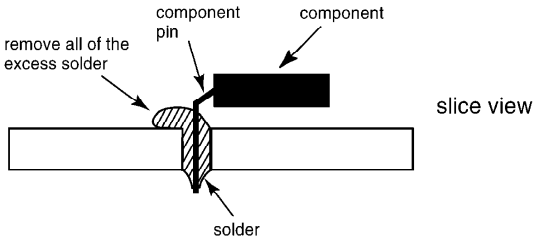
Panasonic

1. ABOUT LEAD FREE SOLDER (PbF: Pb free)

Note:
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.
We will use PbF when discussing the lead free solder used in our manufacturing process which is made from Tin (Sn), Silver (Ag), and Copper (Cu).
This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

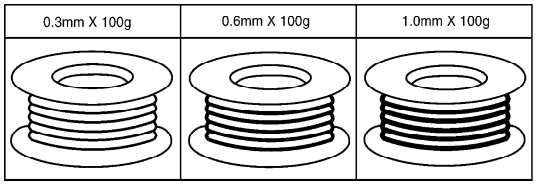
Caution

- **PbF solder has a melting point that is 50°F ~ 70°F (30°C ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700°F ± 20°F (370°C ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.**
- **PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).**
- **If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.**
- **When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See figure, below).**



1.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper,
(Sn+Ag+Cu), you can also use Tin and Copper, (Sn+Cu), or Tin, Zinc, and Bismuth, (Sn+Zn+Bi). Please check the manufac
turer's specific instructions for the melting points of their products and any precautions for using their product with other
materials.
The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.



1.2. Base Unit

1.2.1. Main

(Component View)

(Flow Solder Side View)

1.2.2. Locator

(Component View)

(Flow Solder Side View)

1.2.3. RF Module

(Component View)

1.3. Handset

1.3.1. Main

(Component View)

(Flow Solder Side View)

1.3.2. RF Module

(Component View)

2. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic parts boxes with aluminum foil.

2. Ground the soldering irons.

3. Use a conductive mat on the worktable.

4. Do not touch IC or LSI pins with bare fingers.

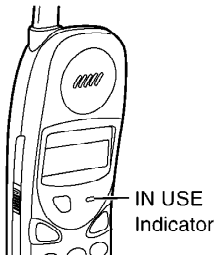
3. CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommendenced by the manufacturer.
Dispose of used batteries according to the manufacture's Instructions.

4. STANDARD BATTERY LIFE

4.1. Recharge

If the unit beeps and then the IN USE indicator flashes slowly when you press /FLASH or while talking, the call will be disconnected within about 3 minutes after the beep sounds. If the unit produces a continuous beep, it will not be able to operate. Place the handset on the base unit to recharge the battery for 15 hours.



4.2. Battery Information

After your Panasonic battery is fully charged:

Operation	Operating time
While in use (TALK)	Up to about 5 hours
While not in use (Standby)	Up to about 5 days

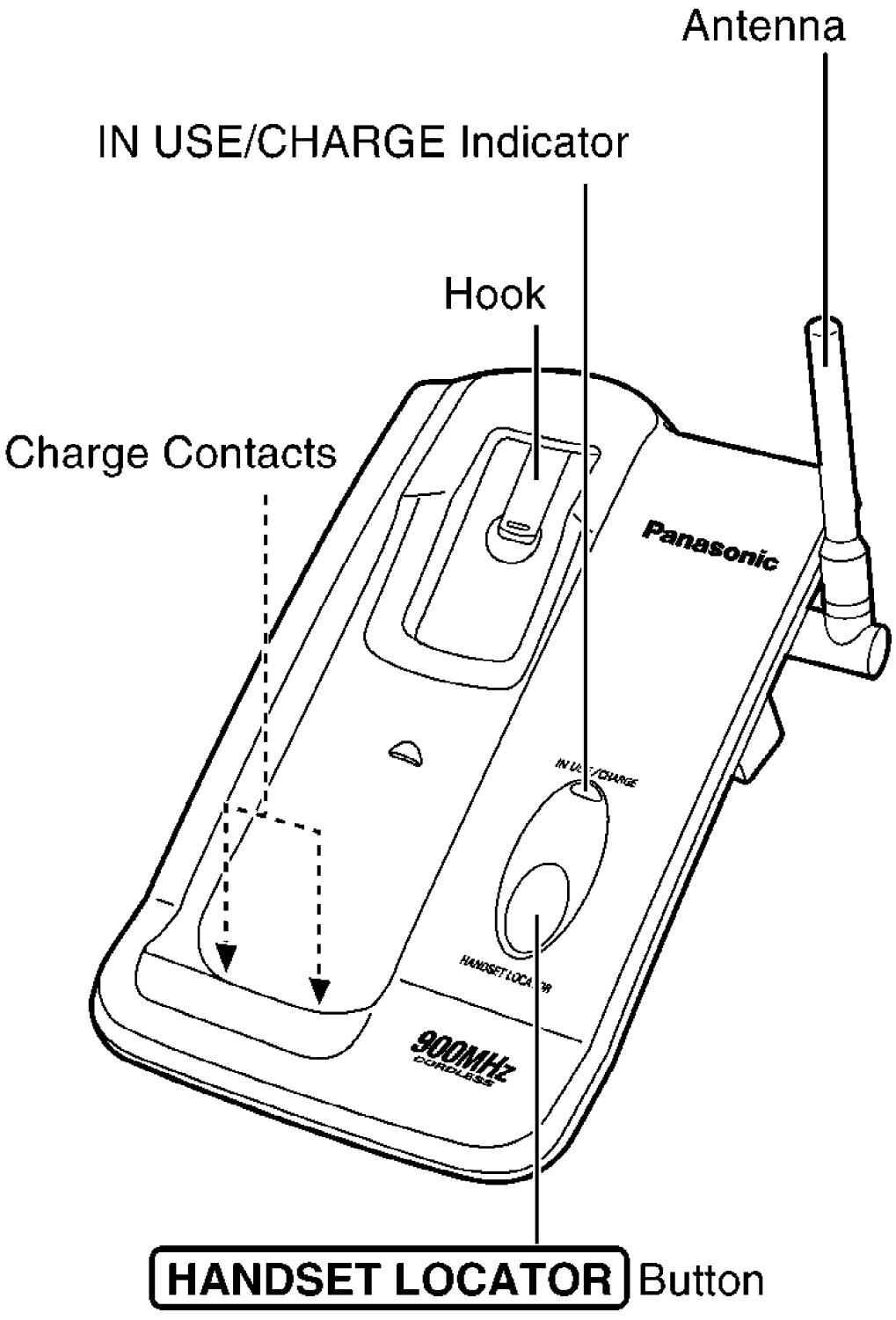
- The battery operating time may vary depending on usage conditions and ambient temperature.
- Clean the handset and the base unit charge contacts with a soft, dry cloth. Clean if the unit is subject to grease, dust or high humidity. Otherwise the battery may not charge properly.
- If the battery is fully charged, you do not have to place the handset on the base unit until the IN USE indicator flashes. This will

maximize the battery life.

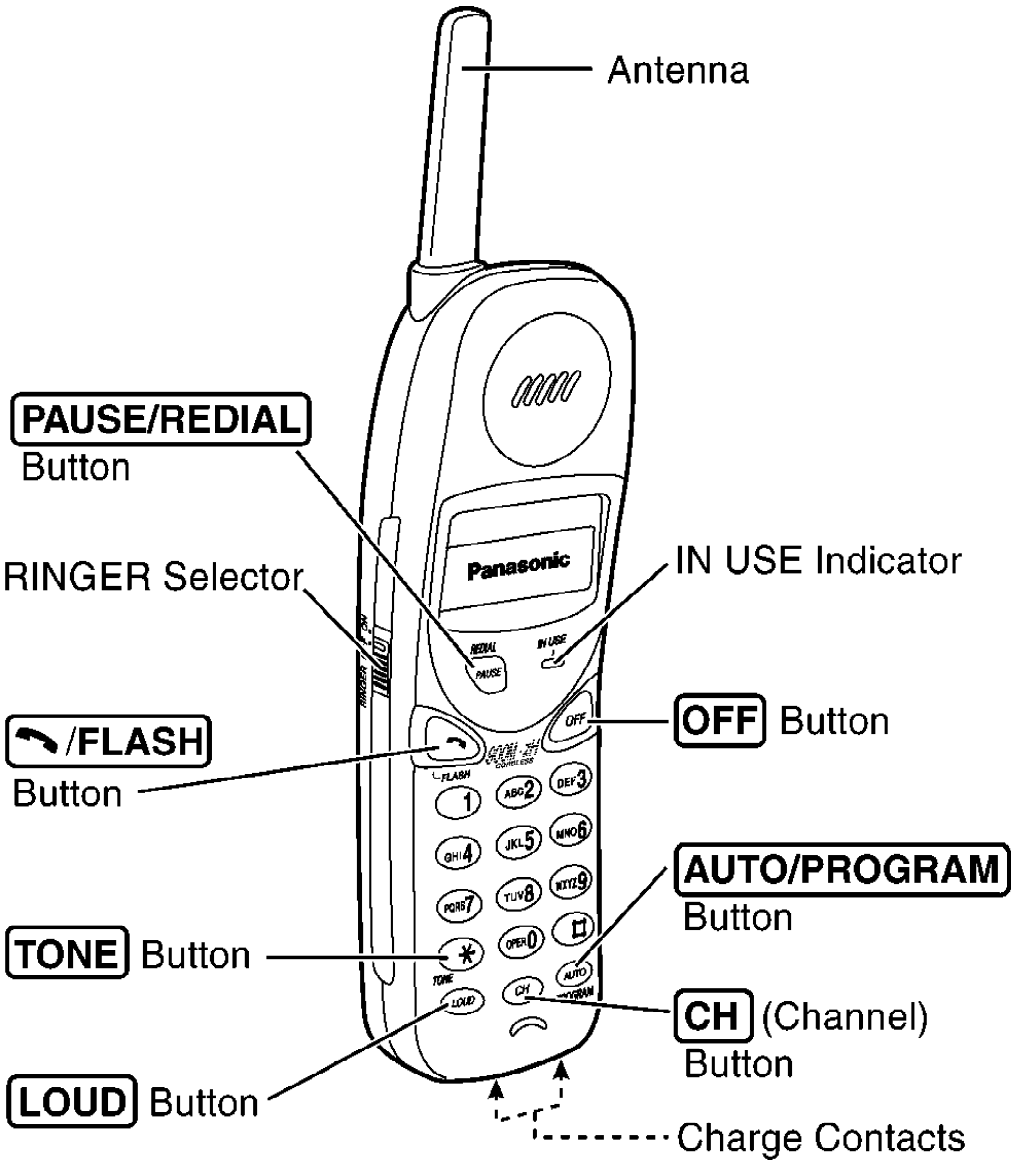
- The battery cannot be overcharged.

5. LOCATION OF CONTROLS

5.1. Base unit



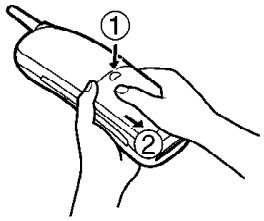
5.2. Handset



5.3. Battery Replacement

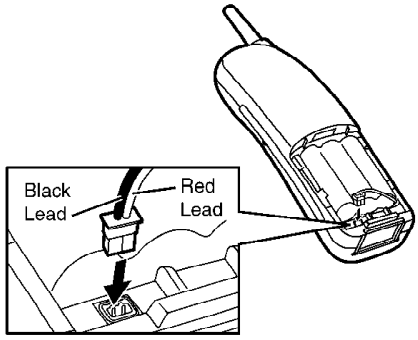
If the IN USE indicator flashes after being fully charged, replace the battery with a new Panasonic P-P504 battery.

1 Press the notch on the handset cover firmly (①) and slide it as indicated by the arrow (②).

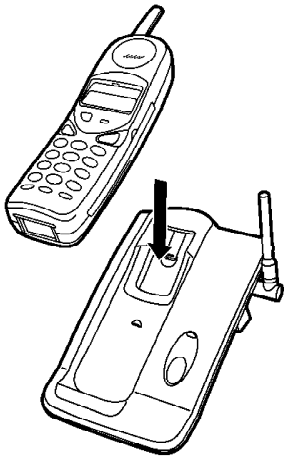


2 Remove the old battery. Then install the new one.

- Insert the battery plug into the connector as shown in the picture.
- Be sure wires are free from being pressed by the battery body or handset cover.

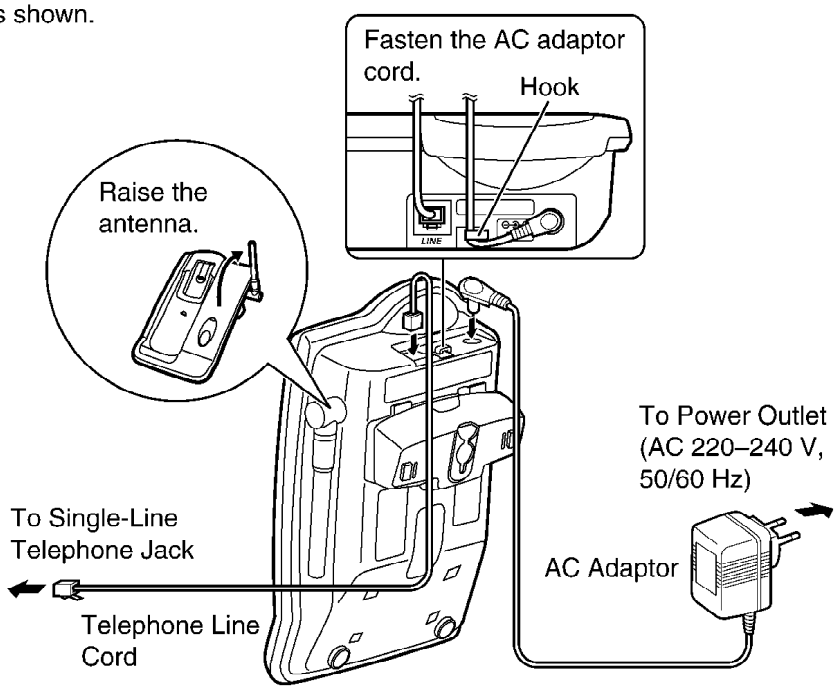


3 Close the cover. Make sure you charge the new battery for about 15 hours.



6. CONNECTIONS

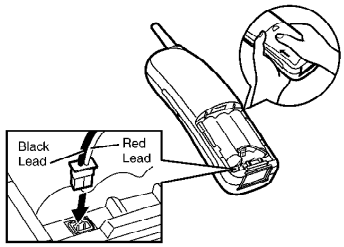
1 Connect as shown.



- USE ONLY WITH Panasonic AC ADAPTOR PQWATC1461BX.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)
- When more than one unit is used, the units may interfere with each other. To prevent or reduce interference, please leave ample space between the base units.

2 Install the battery in the handset and close the handset cover, locking it into place.

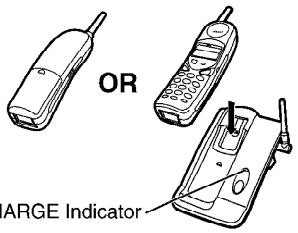
• Please do not put off the tape from the battery.



STOP

3 Charge the battery for about 15 hours.

• The IN USE/CHARGE indicator lights.



To select the dialing mode TONE (preset) or PULSE

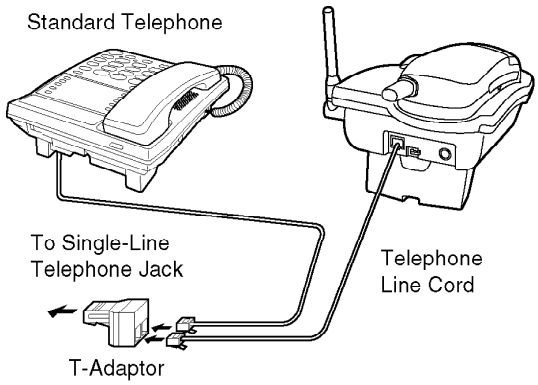
You can program the dialing mode **usng the handset near the base unit.**
The IN USE indecator light must be off before programming.

Press [AUTO/PROGRAM] ➡ [*] ➡ [#] (PULSE) OR [*] (TONE) ➡ [AUTO/PROGRAM]

• To cancel during programming, press [OFF]. Start again from the beginning.

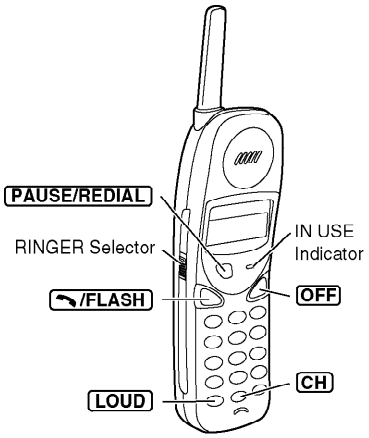
6.1. Adding Another Phone

This unit will not function during a power failure. To connect a standard telephone on the same line, use a T-adaptor.



7. OPERATIONS

7.1. Making Calls



1 Press /FLASH.
- The IN USE indicator lights.

2 Dial a phone number.

3 To hang up, press OFF or place the handset on the base unit.
- The indicator light goes out.

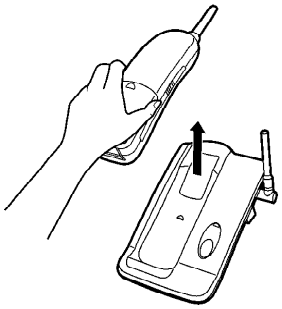
- If additional dialing is necessary after using speed dialing functions such as AUTO or REDIAL, wait untill speed dialing is finished to continue further dialing. Otherwise, the unit may not dial properly.

To redial the last number dialed
Press /FLASH ➡ PAUSE/REDIAL.

To select the receiver volume
4 levels (HIGH, MEDIUM, NOMAL, LOW) are available.
Press LOUD while talking.
- Each time you press LOUD, the volume level will change.

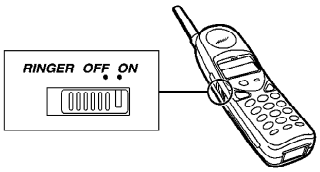
If noise interferes with the conversation
Press CH to select a clearer channel or move closer to the base unit.

7.2. Answering Calls



Lift the handset off the base unit and press /FLASH.
- You can also answer a call by pressing any button except OFF (— **Any Key Talk**).

Selecting the ringer volume



Set the RINGER selector to ON or OFF.
- When set to OFF, the unit will not ring.

8. DISASSEMBLY INSTRUCUTIONS

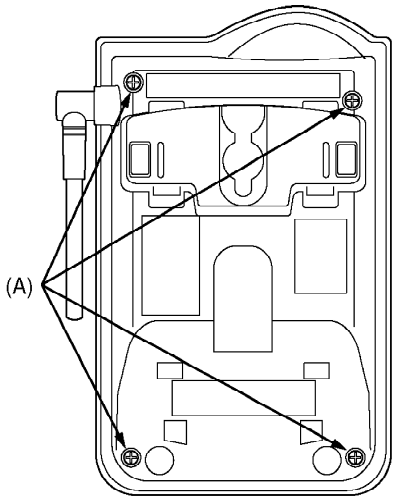


Fig.1

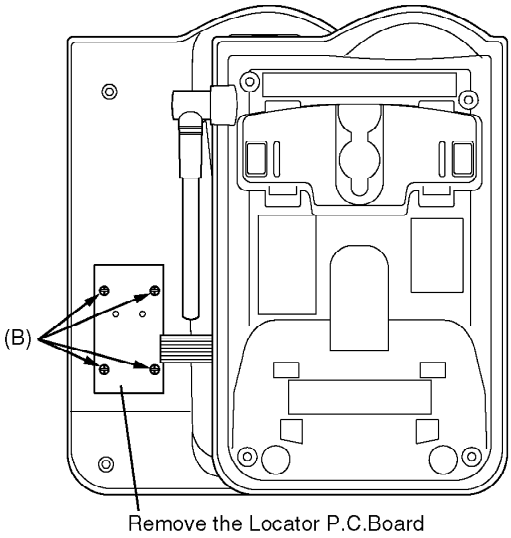


Fig.2

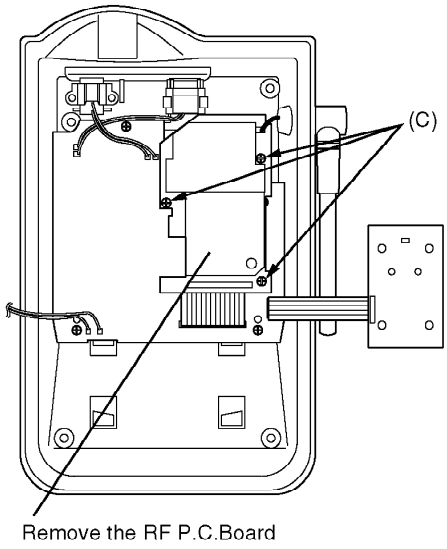


Fig.3

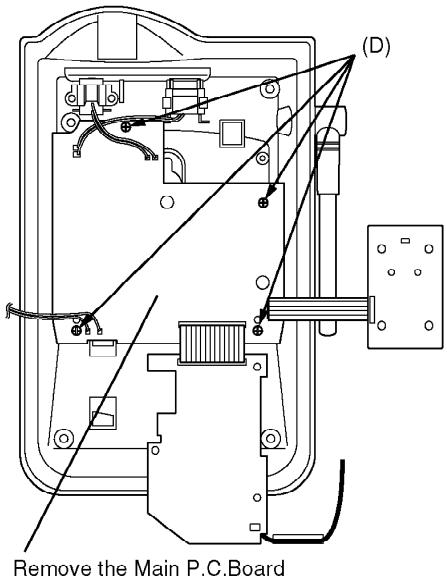


Fig.4

Show in Fig.	To remove.	Remove.
1	Lower Cabinet	Screws (2.6 × 8)..... (A) × 4
2	Locator P.C.Board	Screws (2.3 × 6)..... (B) × 4
		Locator P.C.Board
3	RF P.C.Board	Screws (2 × 6)..... (C) × 3
		RF P.C.Board
4	Main P.C.Board	Screws (2.3 × 6)..... (D) × 4
		Main P.C.Board

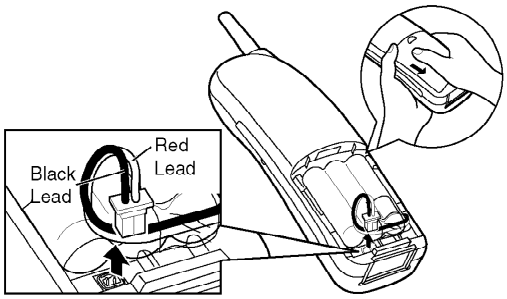


Fig.5

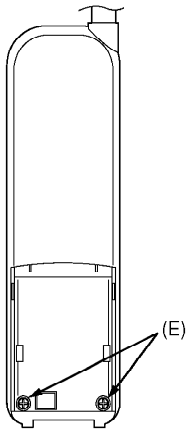


Fig.6

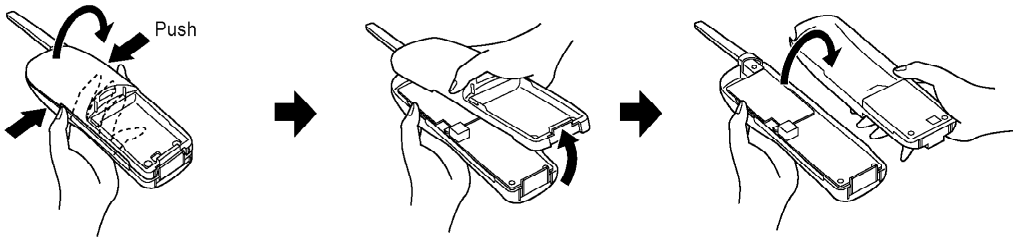


Fig. 7

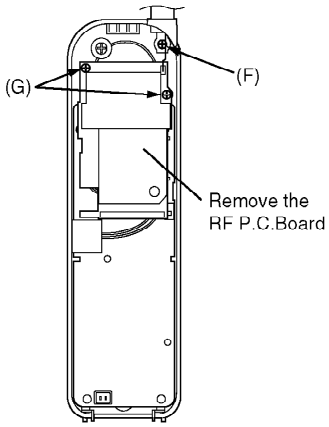


Fig.8

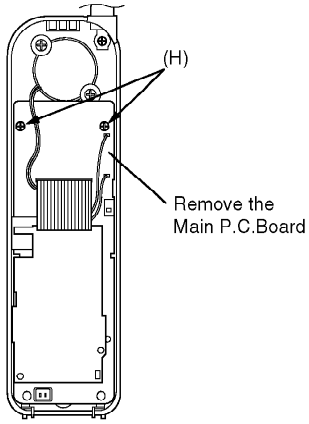


Fig.9

Show in Fig.	To remove.	Remove.
5	Rear Cabinet	Battery compartment cover.
6		Screws (2.6 × 8).....(E) × 2
7		
8	Antenna	Screw (2.6 × 8).....(F) × 1
	RF P.C.Board	Screws (2 × 6).....(G) × 2
		RF P.C.Board.
9	Main P.C.Board	Screws (2 × 6).....(H) × 2
		Main P.C.Board

9. HOW TO REMOVE TEL JACK

1. **Keep 2 hooks for TEL JACK fixing open in the direction of arrow 1, then pull the top of TEL JACK forward as shown arrow 2 until the hooks click. (Refer to Fig. 1.)**
2. **Remove TEL JACK pulling just above in the direction of arrow 3. (Refer to Fig. 2.)**

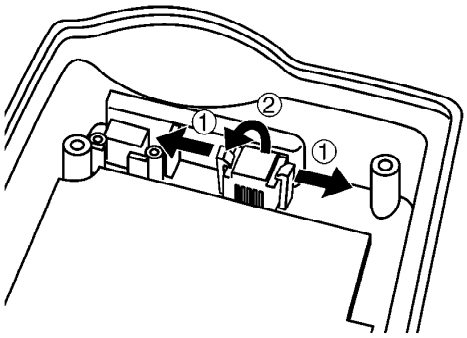


Fig. 1

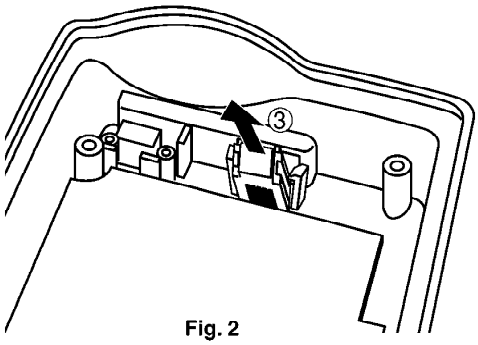
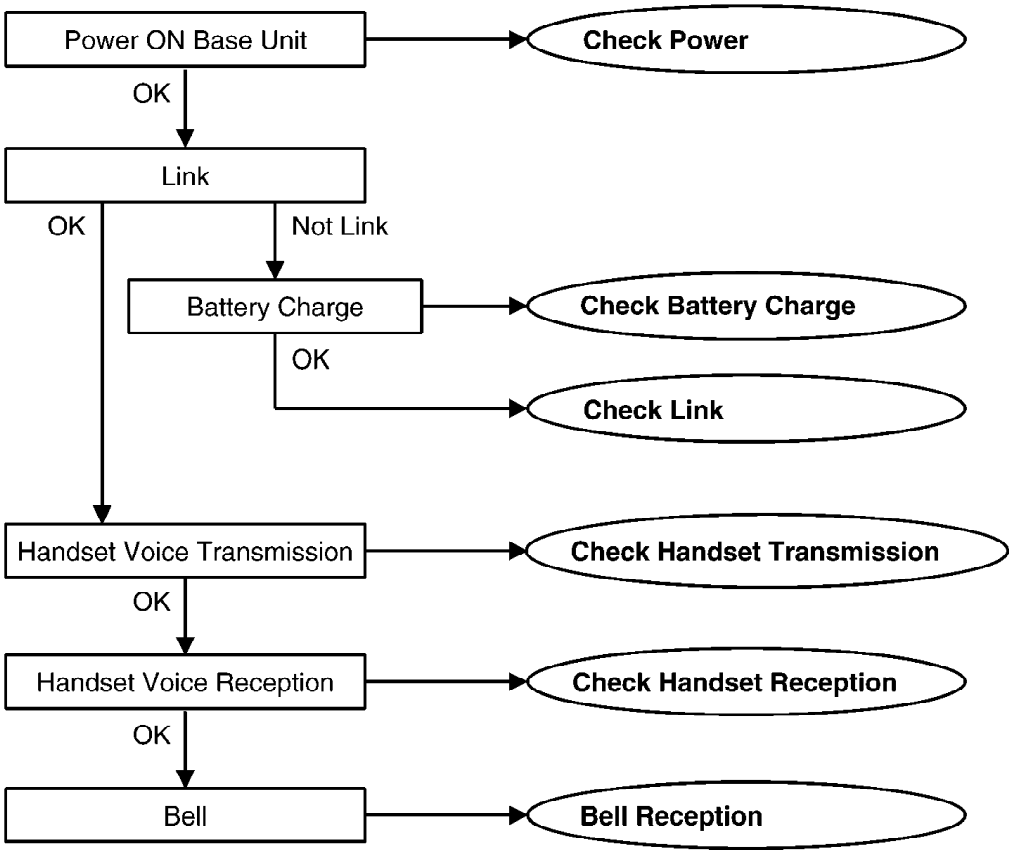


Fig. 2

10. TROUBLESHOOTING GUIDE

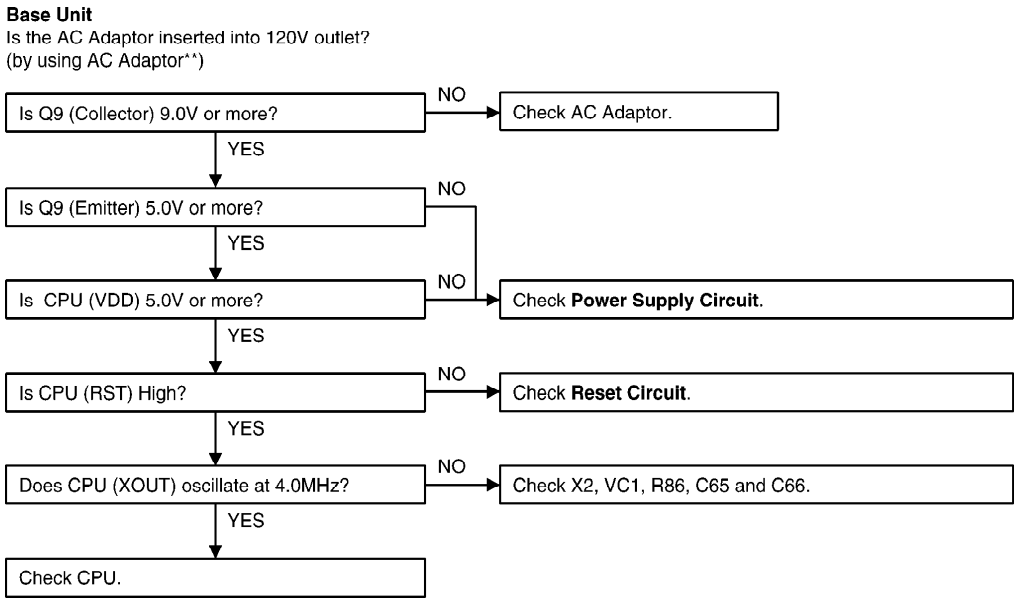
MAIN



Cross Reference:
Check Power ()

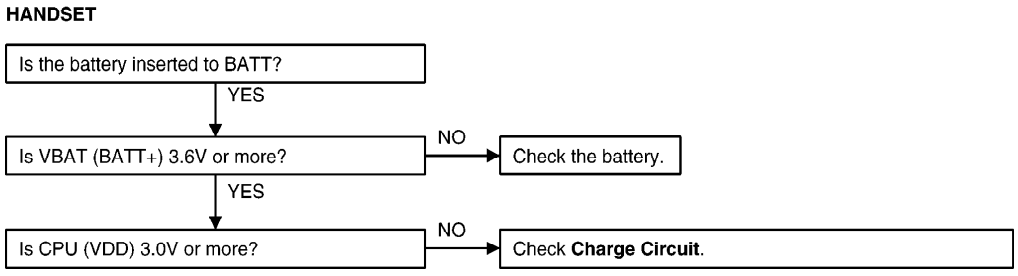
Bell Reception ()
Check Battery Charge ()
Check Link ()
Check Handset Transmission ()
Check Handset Reception ()

10.1. Check Power



Cross Reference:
Reset Circuit ()
Power Supply Circuit ()
** : CONNECTIONS ()

Note:
CPU: IC3



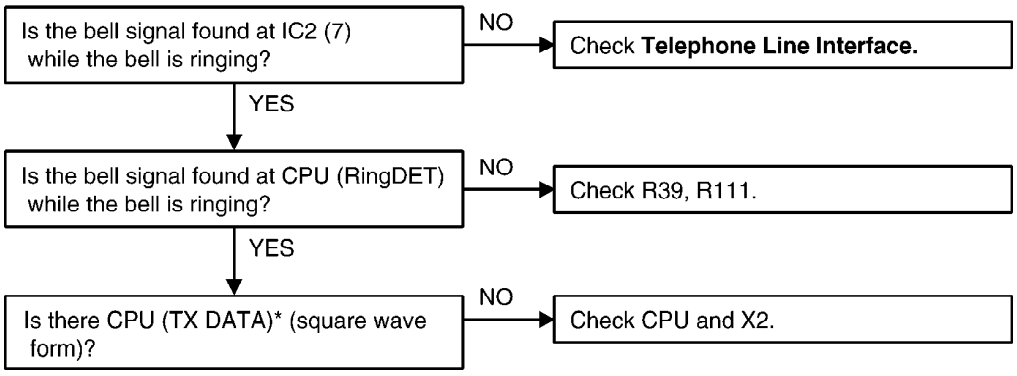
Cross Reference:
Charge Circuit ()

Note:
CPU: U1

*** : Each measurement points are shown in CIRCUIT BOARD (BASE UNIT) () or CIRCUIT BOARD (HANDSET) ()**

10.2. Bell Reception

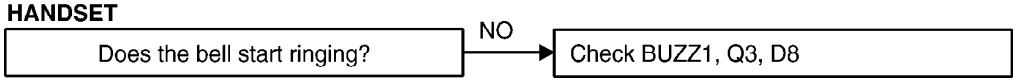
Base Unit



Cross Reference:
Telephone Line Interface ()

Note:
CPU : IC3

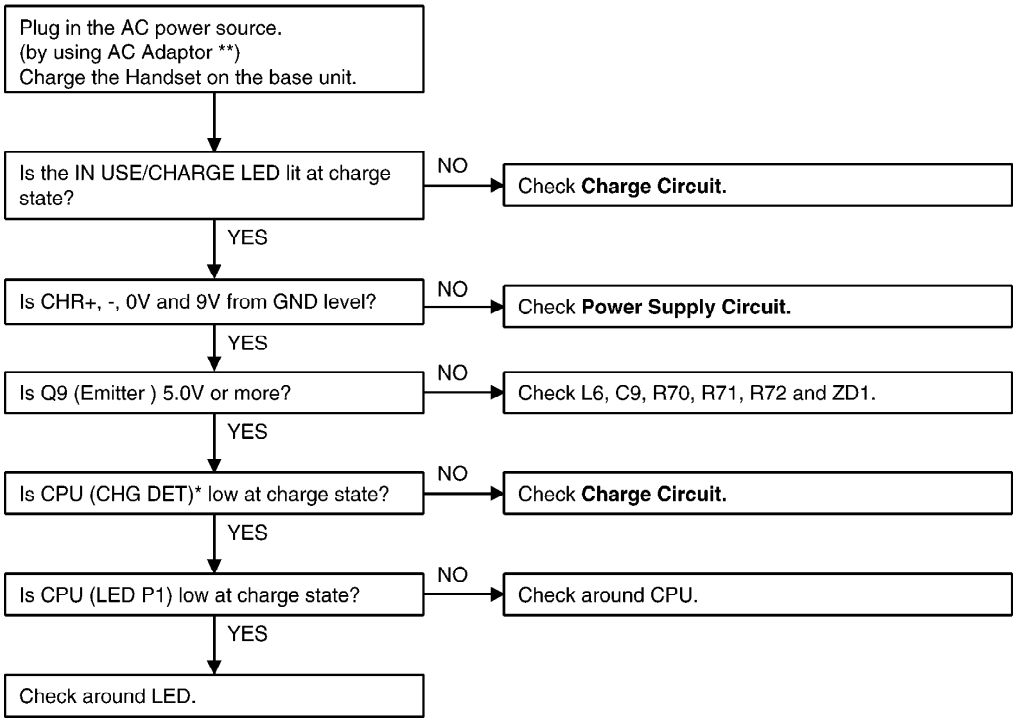
HANDSET



*** : Each measurement points are shown in CIRCUIT BOARD (BASE UNIT) () or CIRCUIT BOARD (HANDSET) ()**

10.3. Check Battery Charge

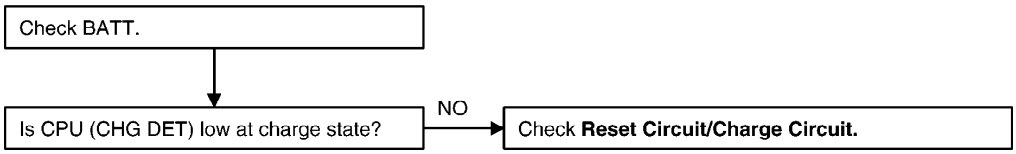
Base Unit



Cross Reference:
Charge Circuit ()
Power Supply Circuit ()
**** : CONNECTIONS ()**

Note:
CPU: IC3

HANDSET



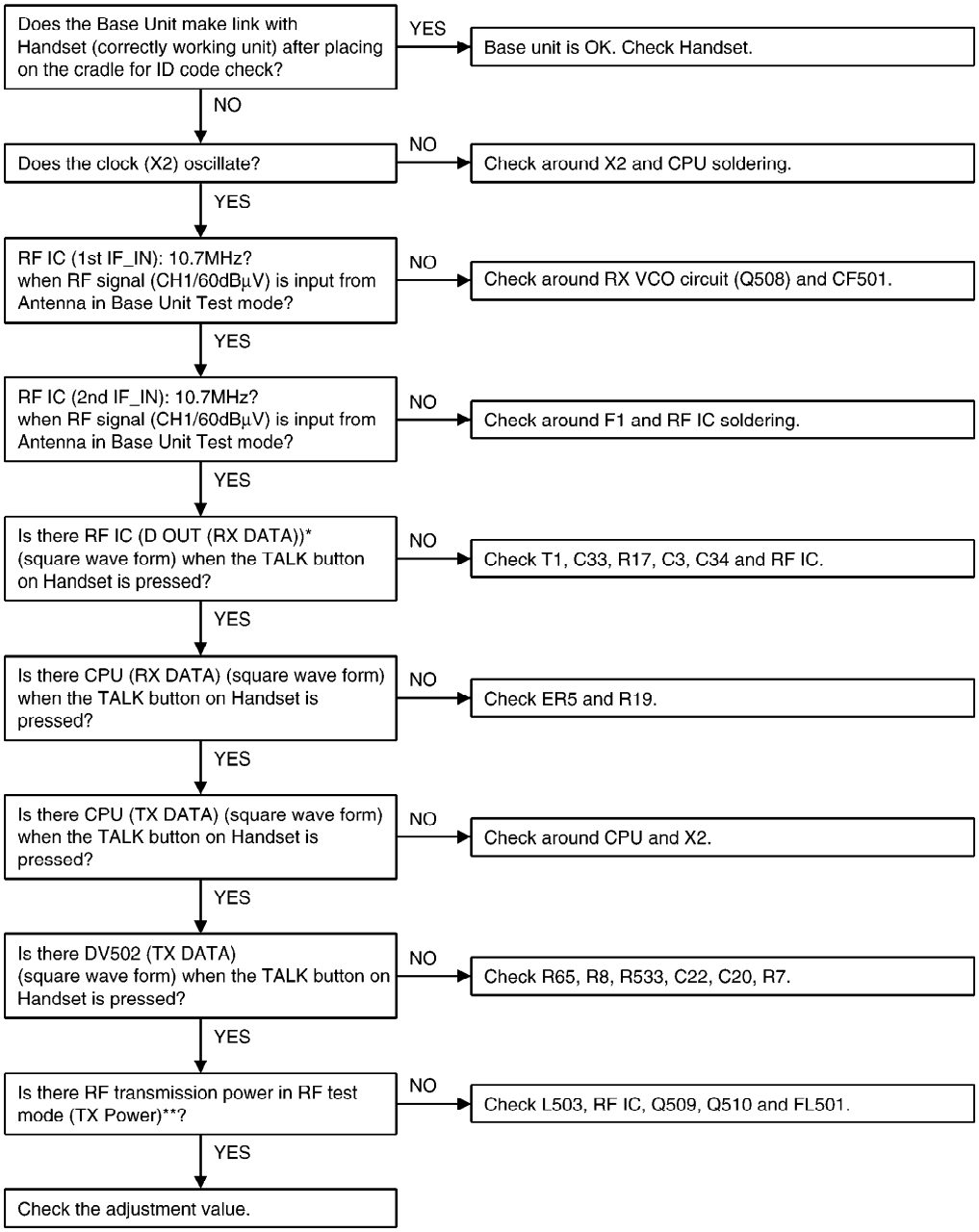
Cross Reference:
Reset Circuit/Charge Circuit ()

Note:
CPU: U1

***: Each measurement points are shown in CIRCUIT BOARD (BASE UNIT) () or CIRCUIT BOARD (HANDSET) ()**

10.4. Check Link

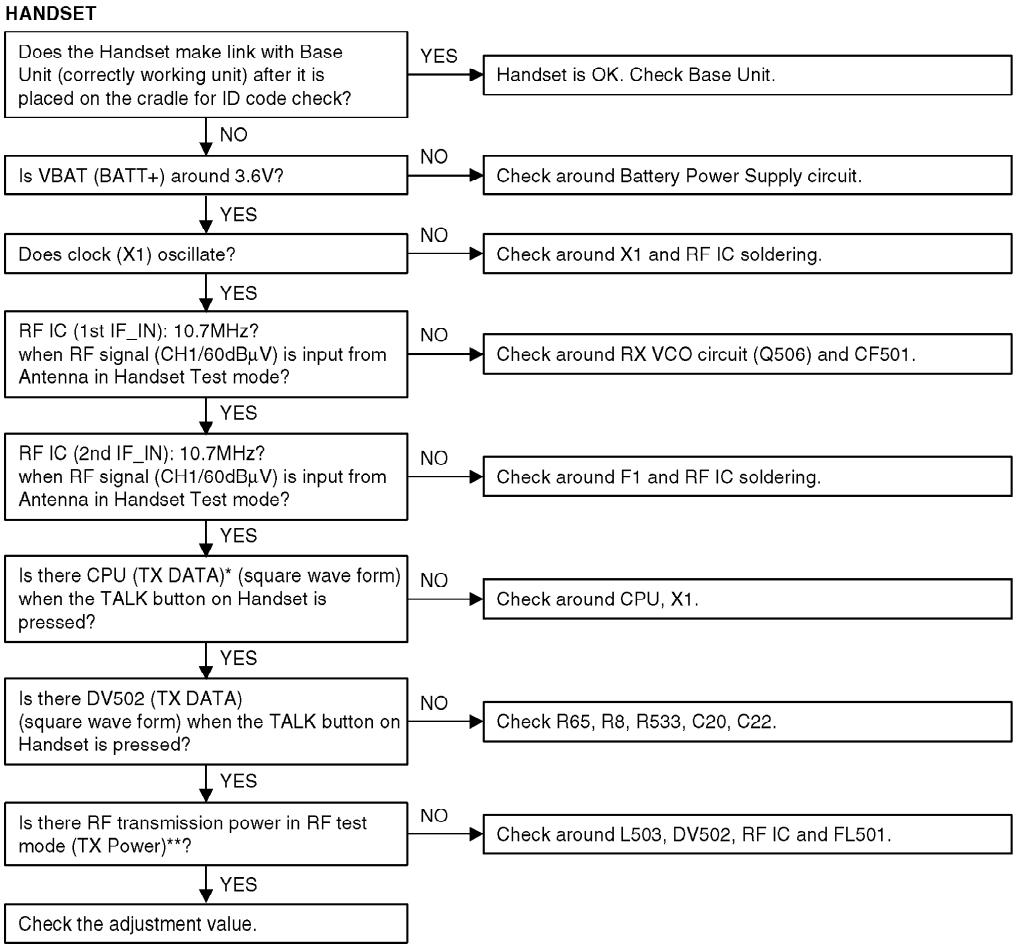
BASE UNIT



****: Refer to Adjustment ()**

Note:
CPU: IC3
RF IC: IC1

***: Each measurement points are shown in CIRCUIT BOARD (BASE UNIT) () or CIRCUIT BOARD (HANDSET) ()**

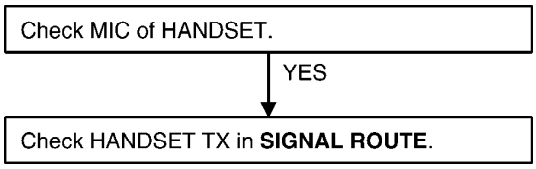


****: Refer to Adjustment ().**

Note:
CPU: U1
RF IC: IC1

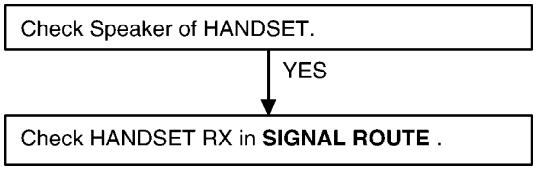
***: Each measurement points are shown in RF Module ()**

10.5. Check Handset Transmission



Cross Reference:
SIGNAL ROUTE ()

10.6. Check Handset Reception



Cross Reference:
SIGNAL ROUTE ()

11. ADJUSTMENTS (BASE UNIT)

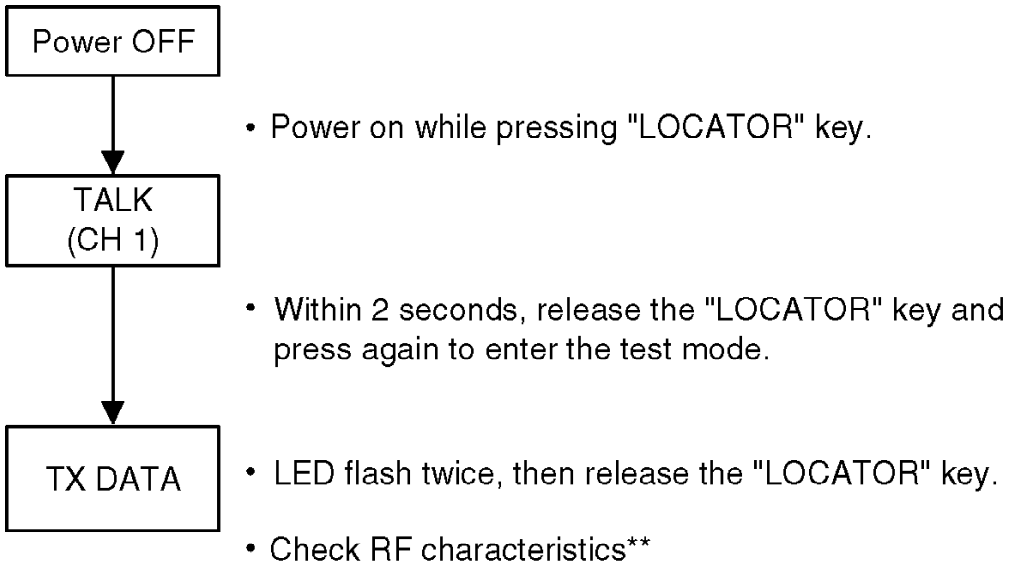
If your unit have below symptoms, adjust or confirm each item using remedy column from the table.

Symptom	Remedy*
The base unit dose not respond to a call from handset.	Make adjustments in item
The base unit dose not transmit or the transmit frequency is off.	Make adjustments in item
The transmit frequency is off.	Make confirmation in item
The transmit power output is low, and the operating distance between the base unit and the handset is less than normal.	Make confirmation in item
The reception sensitivity of base unit is low with noise.	Make confirmation in item
The transmit level is high or low.	Make confirmation in item
The reception level is high or low.	Make adjustments in item
The unit does not link.	Make confirmation in item

***: Refer to Adjustment ().**

11.1. Test Mode Flow Chart (Base Unit)

The operation-flow of Test mode and main check items are shown below.



Note:
****: Refer to the above table.**

11.2. Adjustment

	Adjustment Items	Test Mode	Adjustment Point	*Procedure
(A)	RX VCO	CH1 Talk	L502	-Adjust L502 so that the reading of the Digital Voltmeter is 1.75V ± 0.2V. (at TP808)
(B)	TX VCO	CH1 Talk	L503	-Adjust L503 so that the reading of the Digital Voltmeter is 1.8V ± 0.15V. (at TP809)
(C)	TX Frequency	CH1 Talk	VC1	-Adjustment VC1 so that the reading of the frequency counter is 1ch Freq. (902.1MHz) ± 9KHz at the antenna.
(D)	TX Power Confirmation	CH1 Talk	T5	-Confirm so that the reading of the RF VTVM is -7 ± 2dBm. (at TP510)
(E)	RX Sensitivity Confirmation	CH1 Talk	-	1. Apply -107dBm output from S.S.G. (modulation frequency 1KHz, dev. 0KHz). 2. Confirm that the distortion reading of Audio Analyzer is less than 25%.
(F)	Line Output Level Confirmation	CH1 Talk	-	1. Apply -60dBm output from S.S.G. (modulation frequency 1KHz, dev. 25KHz). 2. Confirm that the reading of Audio Analyzer is -20 ± 1dBm (600 Ω load).

	Adjustment Items	Test Mode	Adjustment Point	*Procedure
(G)	Line Input Modulation Confirmation	CH1 Talk	-	1. Input via loop simulator 1.0KHz, -10dBm (measured at T-R) signal. 2. Confirm so that the reading of FM Deviation Meter is 25KHz ± 1KHz.
(H)	RSSI Confirmation	CH1 Talk	-	Hold the “Locator” key for 5 seconds to enter to RSSI test. 1. Measure the SSG output level when the SIG_OUT changes from Low to High. 2. Confirm that the SSG output level is -70+10/-15dBm.
(I)	Data Modulation confirmation	TX Data	-	-Confirm for 65 ± 10KHz FM Deviation Meter reading

The connection of adjustment equipment are as shown in Adjustment Standard (Base Unit) ().
SSG Frequency: 925.9 MHz

11.3. Adjustment Standard (Base Unit)

(Main, Flow Solder Side View)

(RF Module)

12. ADJUSTMENTS (HANDSET)

If your unit have below symptoms, adjust or confirm each item using remedy column from the table.

Symptom	Remedy*
The movement of Battery Low Indicator is wrong.	Make confirmation in item
The base unit does not respond to a call from the handset.	Make adjustments in item
The base unit does not transmit or the transmit frequency is off.	Make adjustments in item
The transmit frequency is off.	Make confirmation in item
The transmit power output is low, and the operating distance between the base unit and the Handset is less than normal.	Make confirmation in item
The reception sensitivity of base unit is low with noise.	Make confirmation item (F
Does not link between the base unit and the handset.	Make confirmation in item
The reception level is high or low.	Make confirmation item (H
The transmit level is high or low.	Make adjustments in item

***: Refer to Adjustment ().**

Unit condition:

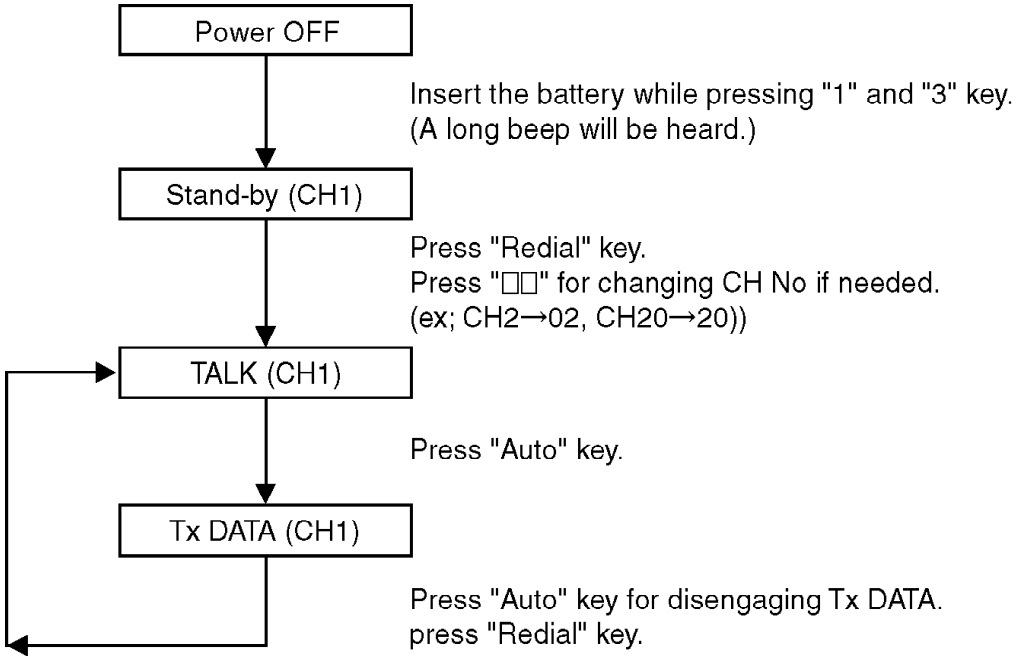
1. Remove the antenna lead wire from P.C Board of the handset.

2. Power Supply: DC 3.9V (DC power supply)

3. Speaker Load: 150 Ω

CH	TX Frequency	RX Frequency	Volume
CH1	925.9MHz	902.1MHz	2

12.1. Test Mode Flow Chart (Handset)



Note:
Refet to CIRCUIT BOARD (HANDSET) ()
SIGNAL ROUTE ()

12.2. Adjustment

	Adjustment Items	Test Mode	Adjustment Point	Procedure
(A)	TX VCO	Stand-by	L503	1. Adjust L503 so that the reading of the Digital Voltmeter is 1.80V ± 0.15V. (at TP809)
(B)	RX VCO	Stand-by	L502	1. Adjust L502 so that the reading of the Digital Voltmeter is 1.75V ± 0.2V. (at TP802)
(C)	TX Frequency Adjustment	Stand-by	VC1	-Adjust VC1 so that the reading of the frequency counter is 925.9MHz ± 9KHz.
(D)	TX Power Confirmation	Stand-by	-	-Output level should be over -4 ± 2dBm on RF VTVM (50 Ω load). (at TP510)
(E)	RX Sensitivity Confirmation (SP out)	Talk	-	1. Apply -107dBm output from S.S.G. (modulation frequency 1KHz, dev. 25KHz). 2. Confirm that the distortion reading of Audio Analyzer is less than 25%.
(F)	RSSI Confirmation	Talk	-	1. Measure the SSG output level when the SIG_OUT changes from Low to High. (modulation frequency 1KHz, dev.25kHz) 2. Confirm that the SSG output level is -70 ± 15dBm.
(G)	Speaker Output Level confirmation	Talk	-	1. Apply -47dBm output from S.S.G. (modulation frequency 1KHz, dev. 25KHz). 2. Confirm that SP output level is 170 ± 10mVrms. (distortion: less than 7%) (volume High).
(H)	Mic Modulation Factor	Talk	VR1	1. Apply a MIC signal (1KHz, 3.8mVrms). 2. Adjust so that the reading FM Deviation Meter is 25kHz ± 1KHz.
(I)	Data Modulation Confirmation	Tx Data	-	-Confirm for 40kHz ± 10KHz FM Deviation Meter reading.

The connections of adjustment equipment are as shown in Adjustment (Handset) ().
SSG Frequency: 902.1 MHz

12.3. Adjustment (Handset)

(Main, component View)

(RF Module)

13. FREQUENCY TABLE (MHz)

	BASE UNIT		HANDSET	
Channel	Transmit Frequency	Receive Frequency	Transmit Frequency	Receive Frequ
1	902.10	925.90	925.90	902.10
2	902.15	925.95	925.95	902.15
3	902.20	926.00	926.00	902.20
4	902.25	926.05	926.05	902.25
5	902.30	926.10	926.10	902.30
6	902.35	926.15	926.15	902.35
7	902.40	926.20	926.20	902.40
8	902.45	926.25	926.25	902.45
9	902.50	926.30	926.30	902.50
10	902.55	926.35	926.35	902.55
11	902.60	926.40	926.40	902.60
12	902.65	926.45	926.45	902.65
13	902.70	926.50	926.50	902.70
14	902.75	926.55	926.55	902.75
15	902.80	926.60	926.60	902.80
16	902.85	926.65	926.65	902.85
17	902.90	926.70	926.70	902.90
18	902.95	926.75	926.75	902.95
19	903.00	926.80	926.80	903.00
20	903.05	926.85	926.85	903.05
21	903.10	926.90	926.90	903.10
22	903.15	926.95	926.95	903.15
23	903.20	927.00	927.00	903.20
24	903.25	927.05	927.05	903.25
25	903.30	927.10	927.10	903.30
26	903.35	927.15	927.15	903.35
27	903.40	927.20	927.20	903.40
28	903.45	927.25	927.25	903.45
29	903.50	927.30	927.30	903.50
30	903.55	927.35	927.35	903.55
31	903.60	927.40	927.40	903.60
32	903.65	927.45	927.45	903.65
33	903.70	927.50	927.50	903.70
34	903.75	927.55	927.55	903.75
35	903.80	927.60	927.60	903.80
36	903.85	927.65	927.65	903.85
37	903.90	927.70	927.70	903.90

38	903.95	927.75	927.75	903.95
39	904.00	927.80	927.80	904.00
40	904.05	927.85	927.85	904.05

14. BLOCK DIAGRAM (BASE UNIT)

15. CIRCUIT OPERATION

15.1. Outline

Base unit consists of the following ICs as shown in BLOCK DIAGRAM.

- CPU:IC3
- Controlling the whole system
- Forming/analyzing all data signals (ACK, CMD signal etc.)
- All interfaces (ex: LED, KEY, Detector Circuit (Charge/ Power Down)
- RF IC:IC1
- PLL Oscillator
- Compress/ Expander
- Amplifier for transmission and reception
- Additionally
- Power Supply Circuit
- Reset Circuit
- Charge Circuit
- Telephone Line Interface Circuit

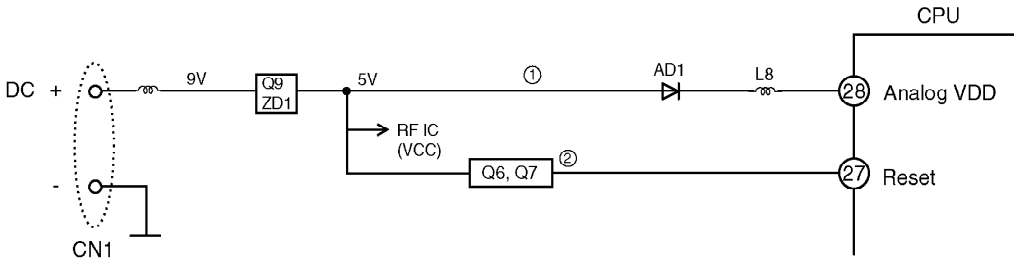
15.2. Power Supply Circuit

The power supply to the CPU (Digital, Analog) and RF IC from AC Adaptor (+9V) as shown in diagram in Reset Circuit ().

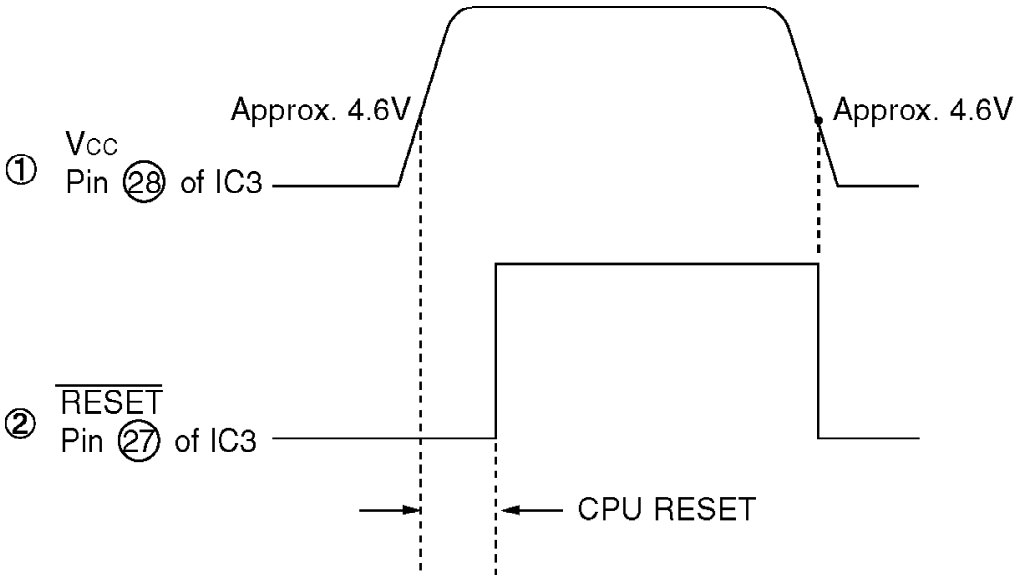
15.3. Reset Circuit

After power supply from AC adaptor, the VDD (5.0V) is input to Q6, Q7 for making reset signal. Refer to the below waveform.

<Fig. 101>



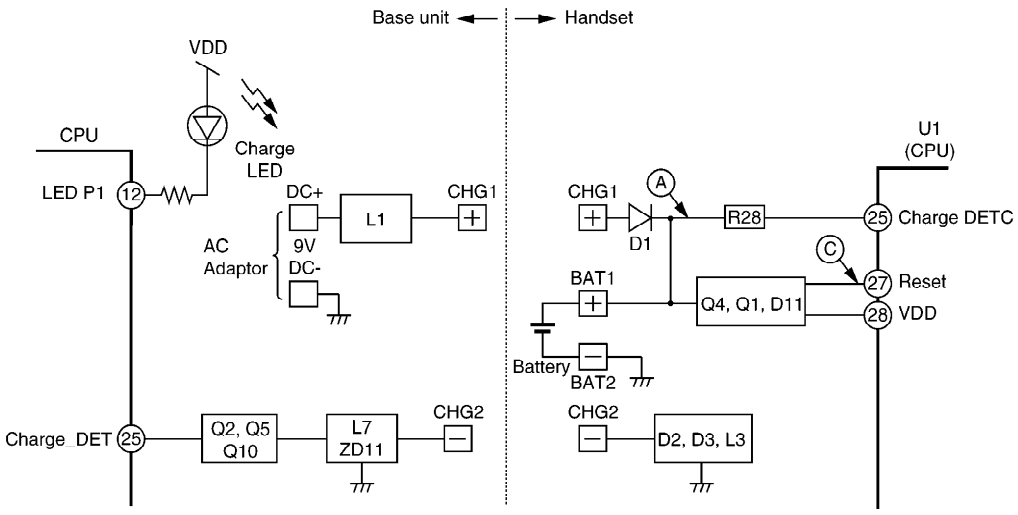
<Fig. 102>



15.4. Charge Circuit

Circuit Operation:
When charging the handset on the base unit, the charge current is as follows;
DC+(9V) → L1 → CHG (Base) → [CHG1 (Handset) → D1 → BAT1....Battery....BAT2 (GND) → D2 → D3 → CHG2 (Handset)] → CHG2 (Base) → L7 → ZD11 → DC-(GND),
In this way, the CPU on both unit detects the fact that the battery is charged.

<Fig. 103>



15.5. Telephone Line Interface

Function:

- Bell signal detection
- ON/OFF hook and pulse dial circuit
- Side tone circuit

Bell signal detection and OFF HOOK circuit:
In the idle mode, Q3 is open to cut the DC loop current and decrease the ring load. When ring voltage appears at the Tip (T)
and Ring (R) leads (When the telephone rings), the AC ring voltage is transferred as follows:
T → L9 → C7 → R44 → IC2-A, B → CPU (Ring DET). [BELL]
When the CPU(IC3) detects a ring signal and press the TALK Key onto the handset. Q3 turns on, thus providing an off-hook
condition (active DC current flow through the circuit) and the following signal flow is for the loop current.
T → L9 → R52 → T4 → RLY1 → L10 → F1 → R [OFF HOOK]

ON HOOK Circuit:
Q3 is open, Q3 connected as to cut the DC loop current via RLY1 and to cut the voice signal. The unit is consequently in an on-hook
condition.

Pulse Dial Circuit:
DSP (Relay) turns Q3 ON/OFF to make the pulse dialing via RLY1.

Side Tone Circuit:
Basically this circuit prevents the TX signal from feeding back to RX signal.
As for this unit, TX signal feed back from IC2 is canceled by AC3 and so on.

15.6. Transmitter/Receiver

Base Unit and Handset are mainly consists of RF (Radio Frequency) IC(IC1) and CPU(IC3).
Base Unit and Handset transmit/receive voice signal and data signal through the antenna on carrier frequency.

Signal Pass:
***Refer to CDL TX/RX in SIGNAL ROUTE ().**

15.6.1. Transmitter Block

Circuit Operation:

The voice signal input from the TEL LINE interface goes to RF IC(IC1) as shown in BLOCK DIAGRAM (BASE UNIT) ().
And the signal goes through the compressor and SPLATTER FILTER of RF IC, it is output to transmitter circuit.
The signal of the data sent to the handset is applied too.
The capacitor of VARICAP (:VD502) is changing in accordance with the voice signal from telephone line interface or TX DATA signal from CPU. Therefore, the carrier frequency which is generated by TXVCO will be changing, and Frequency modulated RF signal is generated and amplified by RF AMP (Doubler: Q510). It pass through the Duplexer FL501 and radiated from Antenna.

Handset detects the voice signal or data signal in the circuit same as the following explanation of Receiver Block.

15.6.2. Receiver Block

Circuit Operation:
The signal of 900MHz band (925.9~927.85MHz) which is input from ANT is filtered at FL501 as shown in BLOCK DIAGRAM (BASE UNIT) (), then it is input to RF IC.
The signal input to RF IC is converted through Mixer, IF filter (CF501) and Expander.
In short 1st local frequency is mixed with the received RF signal. Then it passes through IF (CF501: 10.7 MHz Intermidiate Frequency) and filtered at F1.
The detected signal passes through the expander and Amplifier inside of RF IC to the TEL LINE interface.

RX data (from Handset):
The data signal from handset (ex: Talk, ACK, COM) is also included in 900 MHz band same as the voice data. After second if filter, the data signal is made square shape by data limiting AMP of the RF IC. RX data is output to CPU (RX Data).

16. BLOCK DIAGRAM (HANDSET)

17. CIRCUIT OPERATION (HANDSET)

17.1. Outline

Handset consist of the following ICs as shown in BLOCK DIAGRAM.

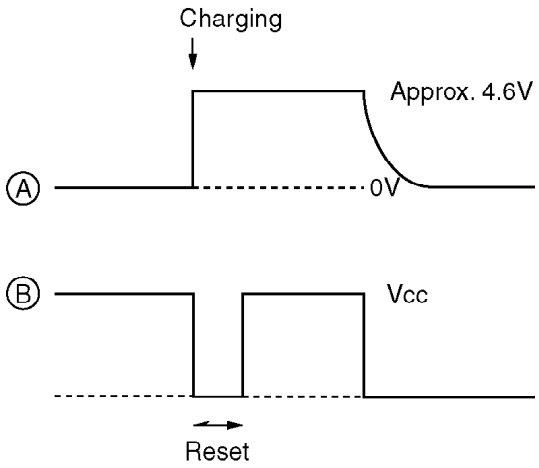
- CPU: U1
- All data signals (forming/analyzing ACK or CMD signal*)

- All interfaces (ex; LED, Key, Buzzer, Detector Circuit, Charge, Battery Low)
- RAM for keeping the data (CH Number, ID Code, etc.)
- RF IC:IC1
- PLL Oscillator
- Compress/Expander
- Amplifier for transmission and reception

17.2. Reset Circuit/Charge Circuit

The power of handset is supplied by battery.
Whenever the battery is recharged or inserted, the impulse at CHG1 becomes Reset signal through D11, and sent to CPU.
***Refer to Charge Circuit ().**

<Fig. 201>

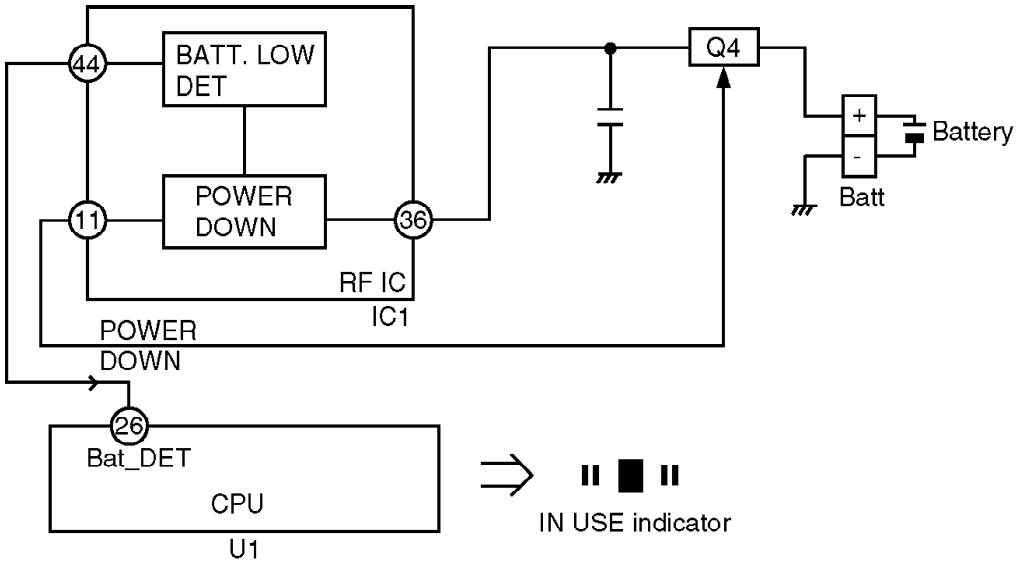


17.3. Battery Low / Power Down Detector

Circuit Operation:
"Battery Low" and "Power Down" are detected by RF IC which check the voltage from battery. Shortly, every detected blocks are inseide of RF IC. The detected voltage is as follows;

- Battery Low
  Battery voltage : V(Batt) < 3.57V
  The CPU detects this level and IN USE " ▮ " starts flashing.
- Power Down
  Battery voltage : V(Batt) < 3.36V
  The output of RF IC (P-DOWN) becomes low level, then CPU stops working to keep the data (CH number, ID Code, etc.)

<Fig. 202>



18. SIGNAL ROUTE

Each signal route is as follows.

SIGNAL ROUTE	IN → signal → ROUTE → OUT
DTMF TONE TEL OUT	(BASE UNIT) IC3 (6-11) - R36 - R35 - IC2 (9-8) - IC2 (12-14) - EC9 - T4 ┬ L9 - TIP └ L10 - RING
CDL TX (to Tel Line)	(HANDSET) MIC - C202 - P5 (12) - P3 (12) - R621 - VR1 - IC1 (9-3) - C22 - R533 - VD502 - L503 - Q509 - C572 - Q510 - FL501 (3-6) - C582 - ANTENNA - to BASE UNIT (BASE UNIT) from HANDSET - ANTENNA - C582 - FL501 (6-1) - Q555 - Q556 - Q512 - CF501 - IC1 (37-35) - F1 - IC1 (33-30) - C37 - T1 - IC1 (29-26) - C6 - R12- IC1 (25-21) - R16 - IC1 (17-15) - P3 (1) - P2 (1) - C24 - R6 - C2 - IC2 (9-8) - IC2 (12-14) - EC9 - T4 ┬ L9 - TIP └ L10 - RING
CDL RX (from Tel Line)	(BASE UNIT) TIP - L9 ┐ T4 - R28 - R5 - P2 (12) - P3 (12) - R621 - C25 - IC1 (9-3) - C22 - R533 - VD502 - RING - L10 ┘ C562 - L503 - Q509 - C572 - Q510 - FL501 (3-6) - ANTENNA - to HANDSET (HANDSET) from BASE UNIT - ANTENNA - C582 - FL501 (6-1) - R501 - Q556 - Q512 - CF501- IC1 (37-35) - F1 - IC1 (33-30) - C37 - T1 - IC1 (29-26) - C6 - R12 - IC1 (25-21) - R16 - IC1 (17-16) - R622 - P3 (15) -P5 (15) - SPI (SPEAKER)

19. CPU DATA (BASE UNIT)

19.1. IC3

Pin	Port Name	Label	Init.	I/O	Description	Rema
1	XOUT	XOUT		O	4MHz crystal oscillator	
2	XIN	XIN		I	4MHz crystal oscillator	
3	TEST	TEST		I	Must be connected to Vss	
4	P67	RSSIN		I	Carrier detect input (combo chip sigout)	H: carrier p
5	P66	PAGE	H	I	PAGE KEY	L: KEY PRE
6	P65	DTMF5	H	O	recradle control, DTMF out5	
7	P64	DTMF4	H	O	DTMF out4	
8	P63	DTMF3	H	O	DTMF out3	
9	P62	DTMF2	H	O	DTMF out2	
10	P61	DTMF1	H	O	DTMF out1	
11	P60	DTMF0	H	O	DTMF out0	
12	P77	LEDP1	H	O	In-Use LED	low: on
13	P76	LEDP2	H	O		
14	VSS	GND			Ground	
15	P75	TXDATA	L	O	TX path data output	
16	P74	TXRFPWR	H	O	TX RF POWER CONTROL	L: RF POWI
17	P73	TXPWR	H	O	TX power control	L: TX powe
18	P72	RESERVED	H	O		
19	P17	FLASHOPT	L	I	Flash time option	H: 600ms, L
20	P16	COMCLK	L	O	Combo chip clock, normal low output	Pull low thr 10k
21	P15	COMDATA	L	O	Combo chip data, normal low output	
22	P14	COMSTB	L	O	Combo chip strobe, normal low output	
23	P13	RXDATA	H	I	RX path data input	
24	P12	LSEIZE	L	O	Line seize control	H: seize lin
25	P11	CHGDET	H	I	charge detect	L: charge
26	P10	RINGDET	H	I	ring detect	
27	RESET	RESET		I	Power on reset pulse signal (w/ charge reset)	
28	VDD	VDD			Power supply (+5V)	

19.2. Digital Security Coding System

Every time the handset is put on the charging cradle of base unit, a 16-bit digital security code is generated and exchanged between base and handset. The security code is randomly selected amongst 65536 combinations. This is to comply with FCC Part 15.214(d) requirement.

20. CPU DATA (HANDSET)

20.1. U1

Pin	Port	Label	Init	I/O	Description	Rema
1	XOUT	XOUT		O	4MHz crystal oscillator	
2	XIN	XIN		I	4MHz crystal oscillator	
3	TEST	TEST		I	Must be connected to Vss	
4	P67	RING_SW/ C_MUTE	L	I	Ringer on/off switch	H: RINGER L: RINGER
5	P66	P66	H	O		
6	P65	R3	H	I	Keyin 3	
7	P64	R2	L	I	Keyin 2	
8	P63	R1	L	I	Keyin 1	
9	P62	RSSI	L	I	Carrier detect input (combo chip sigout)	H: carrier p
10	P61	TX_DATA	L	I	TX path data output	
11	P60	RX_PWR	H	O	RX power control for LNA & RX circuit	L: RX powe
12	P77	E_MUTE	H	O	TALK LED	L: LED ON
13	P76	POW_DWN_IN		I	Power Down Detect in	H: L: Detect
14	VSS	VSS			Ground	
15	P75	STB	L	O	COMBO STROBE	H: ENABLE
16	P74	DATA	H	O	COMBO DATA	
17	P73	CLK	H	O	COMBO CLOCK	
18	P72	TX_PWR	H	O	TX POWER CONTROL	L: TX POWI
19	P17	C4	L	O	Keyout 4, normal low output	
20	P16	C3	L	O	Keyout 3, normal low output	
21	P15	C2	L	O	Keyout 2, normal low output	
22	P14	C1	L	O	Keyout 1, normal low output	
23	P13	BUZZ	H	O	Beep tone output, normal low output	
24	P12	RX_DATA	L	I	RX DATA INPUT	
25	P11	CH_DET	L	I	CHARGE DETECT	L: ON CHAI CRADLE
26	P10	L_BATT	L	I	LOW BATTERY DETECT	L: BATTER
27	RESET	RESET		I		
28	VDD	VCC			Power supply (battery voltage)	

21. EXPLANATION OF IC TERMINALS (RF UNIT)

21.1. IC1

Pin No.	Pin Description		Pin No.	Pin Description	
1	EN	Enable input	29	QUAD_IN	FM detector in
2	CDET	COMP detection	30	QUAD_OUT	IFamp2 output
3	SF_OUT	Splatter filter output	31	NDET	Noise Detectio
4	SFC2	External splatter filter	32	RSSI_DET	RSSI Detectio
5	SFC1	COMP output	33	2NDIF_IN	IFamp2 input
6	COMP_DC	COMP output VREF	34	IFREF1	IFamp2 VREF
7	POWERSAVE	Power Down input	35	1STIF_OUT	IFamp1 output
8	MIC_OUT	Microphone amp output	36	VCC1	VCC1
9	MIC_IN	Microphone amp input	37	1STIF_IN	IFamp1 input
10	BREF	Audio system reference output	38	GND1	Ground 1
11	PD_OUT	Power Down output	39	RXVCC	RX-counter VC
12	VCC2	VCC2	40	PDL	BL, PD thresh selection
13	DOUT	Data amp output	41	VSS	RX-counter Gr
14	GND2	Ground 2	42	FIN_RX	RX-counter inp
15	SPOUT2	SP amp output 1	43	SIGOUT	LD, RSSI, ND
16	SPOUT1	SP amp output 2	44	BATTLOW	BatteryLow ou
17	SPIN	SP amp input	45	VSSS	Logic Gnd
18	PE	Half-Mute detection	46	RXPD	RX-phase com output
19	ZAP	ZAP write	47	PLLREG	Logic Power S Output
20	GND3	Ground 3	48	TX_PD	TX-phase com output
21	EXPOUT	EXP output	49	TXVCC3	TX-counter Vc
22	DIN	Data amp input	50	FIN_TX	TX-counter inp
23	EDET	EXP detection	51	TXVSS	TX-counter Gr
24	PRE_OUT	Pre-amp output	52	OSCI	Xtal oscillator
25	PRE_IN	Pre-amp input	53	OSCO	Xtal oscillator
26	DET_OUT	FM Detector output	54		Xtal oscillator
27	NF_IN	Noise filter input	55	DATA	Serial data inp
28	NF_OUT	Noise filter output	56	CLK	Click input

22. HOW TO REPLACE A FLAT PACKAGE IC

22.1. Preparation

- PbF (: Pb free) Solder

- Soldering Iron

Tip Temperature of 700°F ± 20°F (370°C ± 10°C)

Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.

- Flux

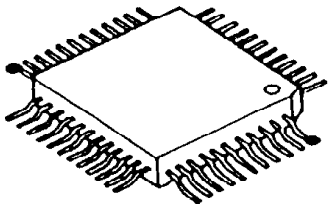
Recommended Flux: Specific Gravity →0.82.

Type →RMA (lower residue, non-cleaning type)

Note: See ABOUT LEAD FREE SOLDER (PbF: Pb free) ().

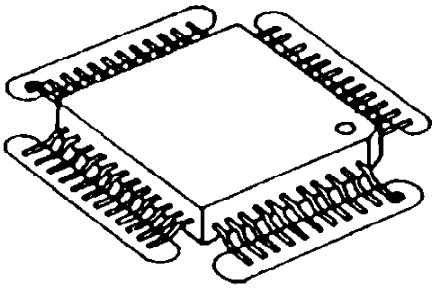
22.2. Procedure

1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



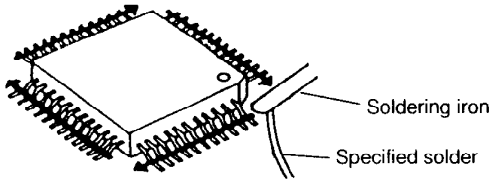
●- - - - - -Temporary soldering point.

2. Apply flux to all of the pins on the IC.



- - - - - - Flux

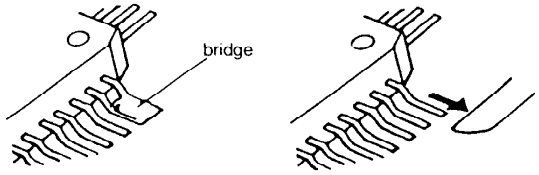
3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.



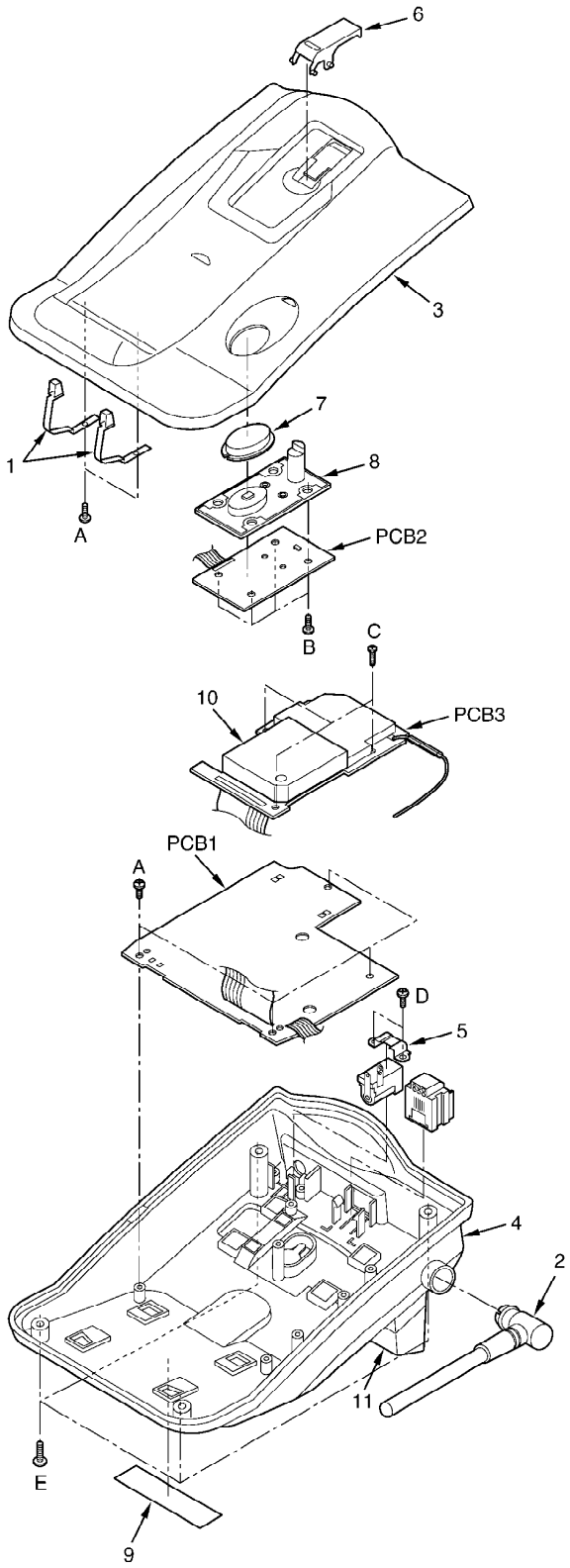
22.3. Removing Solder from Between Pins

1. Add a small amount of solder to the bridged pins.

2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.



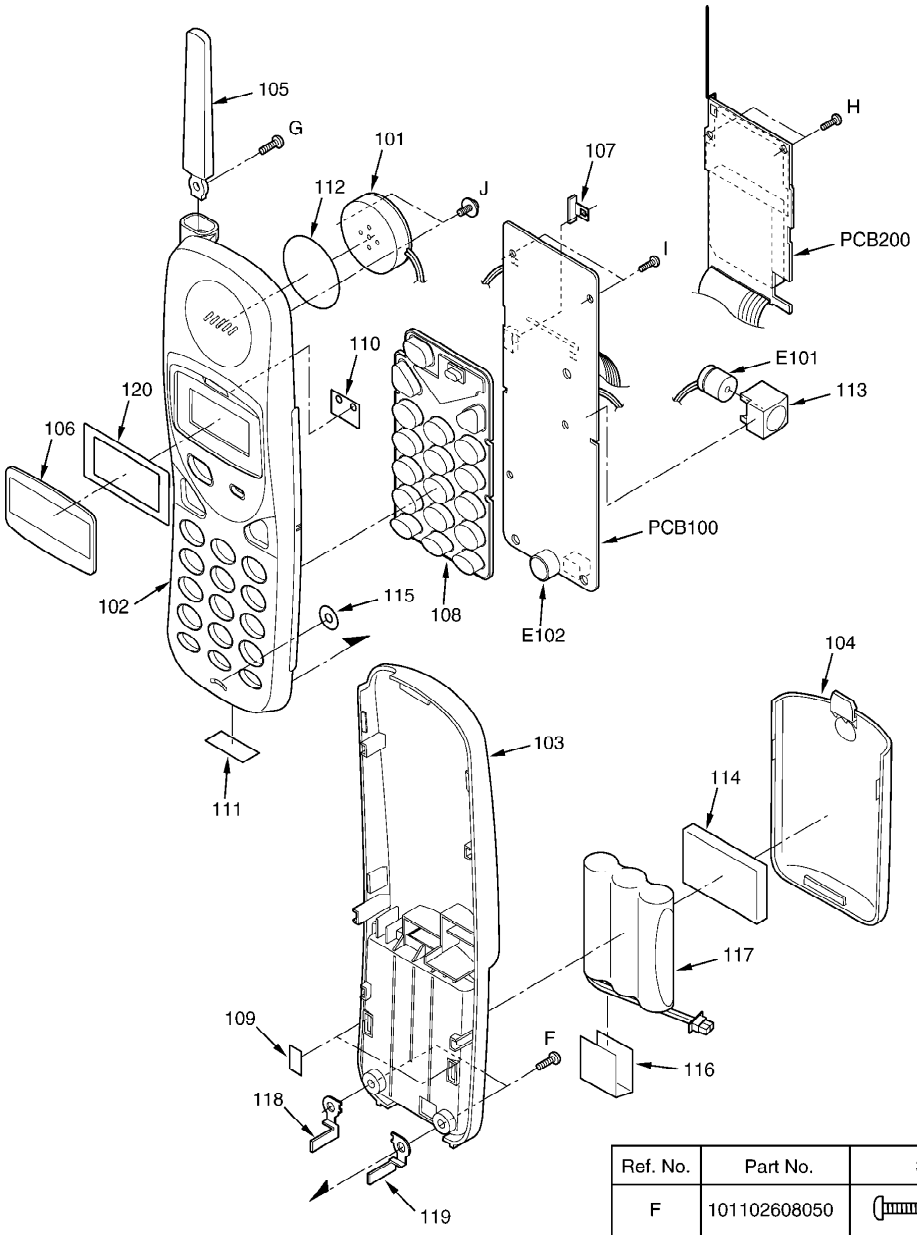
23. CABINET AND ELECTRICAL PARTS LOCATION (BASE UNIT)



Ref. No.	Part No.	Screw
A	101002305050	
B	101102306050	
C	101102006050	
D	101002306050	
E	101002608050	

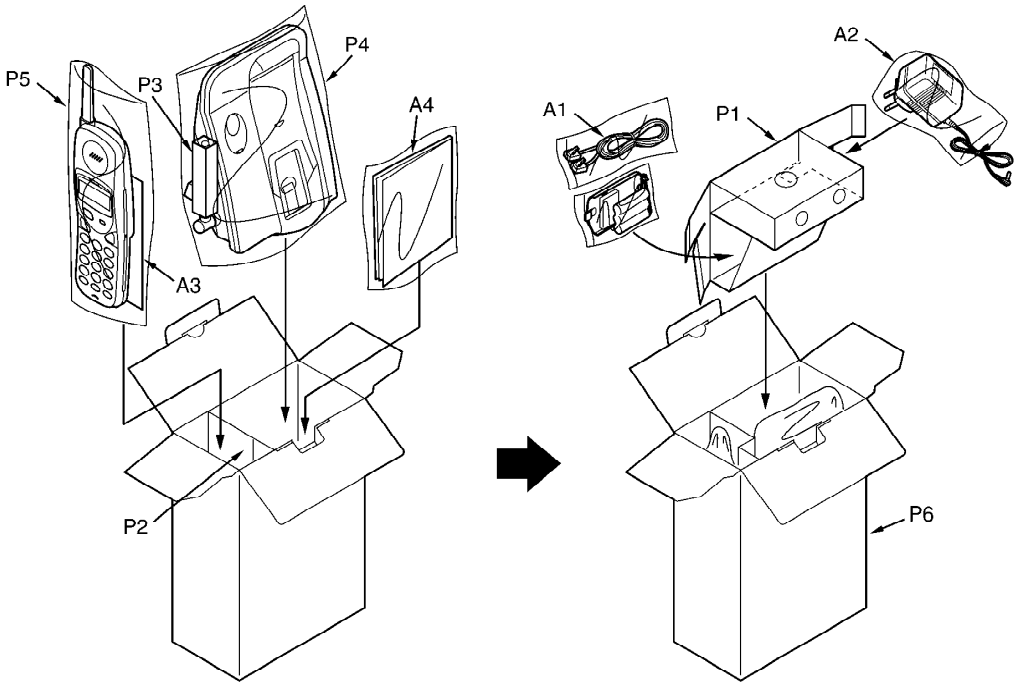
24. CABINET AND ELECTRICAL PARTS LOCATION

(HANDSET)



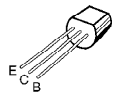
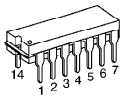
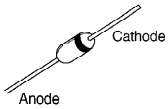
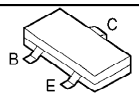
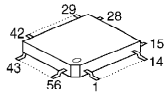
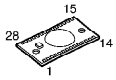
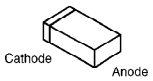
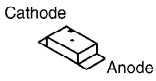
Ref. No.	Part No.	Screw
F	101102608050	
G	101102608050	
H	101002006050	
I	101002006050	
J	101213006050	

25. ACCESSORIES AND PACKING MATERIALS

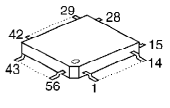
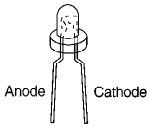
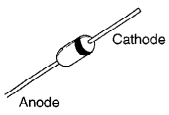
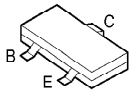
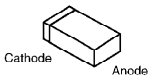
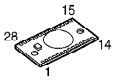


26. TERMINAL GUIDE OF THE ICs TRANSISTORS AND DIODES

26.1. Base Unit

 203904010000 203800010300	 271002401005	 214418000000 212560600000 212750600000	 203394090029 203394090000 203396090004 203403111419 203505180005 203394090029
 274085313120	 PQWIC1461LAH	 214418021000	 213024010006
 335181605805			

26.2. Handset

 274085313220	 335050300005	 214418000000 212560600000	 203394090029 203396090000 203112090005 203403111419 203505180005
 213024010006	 PQWIC1461LAR	 214418021000	

27. REPLACEMENT PARTS LIST

1. RTL (Retention Time Limited)

Note:
The marking (RTL) indicates that the Retention Time is limited for this item.
After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the ⚠ mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. RESISTORS & CAPACITORS

Unless otherwise specified;
All resistors are in ohms (Ω) K=1000 Ω , M=1000k Ω
All capacitors are in MICRO FARADS (μ F)P= μ μ F
***Type & Wattage of Resistor**

Type

ERC:Solid ERDS:Carbon ERJ:Chip	ERX:Metal Film ERG:Metal Oxide ER0:Metal Film	PQ4R:Chip ERS:Fusible Resistor ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage Of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol ECUV,PQCUV,ECUE:Chip ECQMS:Mica	ECCD,ECKD,ECBT,F1K,ECUV:Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECST,EEE:Electlytic ECQP:Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :16V 2A :100V

27.1. Base Unit

27.1.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
1	151023402301	CHARGE TERMINAL	
2	170023700010	ANTENNA	
3	401390023000	UPPER CABINET	
4	402400220370	LOWER CABINET	
5	407400020376	FIXING PLATE	
6	408400020370	HOOK LEVER	
7	408400020376	HANDSET LOCATOR BUTTON	
8	410207100000	KEYBOARD SWITCH	
9	432231511001	NAME LABEL	
10	PQWCTC1461LA	RF SHIELD	
11	407400020370	WALL MOUNT	

27.1.2. Main P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWP11461LAH	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICS)	
IC2	271002401005	IC	S
IC3	PQWIC1461LAH	IC	S
		(TRANSISTORS)	
Q1	203904010000	TRANSISTOR(SI)	S
Q2	203394090029	TRANSISTOR(SI)	S
Q3	203904010000	TRANSISTOR(SI)	S
Q4	203394090000	TRANSISTOR(SI)	S
Q5	203394090029	TRANSISTOR(SI)	S
Q6	203394090000	TRANSISTOR(SI)	S
Q7	203394090000	TRANSISTOR(SI)	S
Q8	203396090004	TRANSISTOR(SI)	S
Q9	203800010300	TRANSISTOR(SI)	S
Q10	203394090000	TRANSISTOR(SI)	S
		(DIODES)	
D1	214418021000	DIODE(SI)	S
D2	214418021000	DIODE(SI)	S
D3	214418021000	DIODE(SI)	S
D4	214418021000	DIODE(SI)	S
D5	214418000000	DIODE(SI)	S
D6	214418000000	DIODE(SI)	S
AD1	214418021000	DIODE(SI)	S
ZD1	212560600000	DIODE(SI)	S
ZD10	212750600000	DIODE(SI)	S
		(COILS)	
L1	392000211000	COIL	S
L10	PQLQZK1R0K	COIL	
L6	PQLQZK680K	COIL	
L7	PQLQZK680K	COIL	
L8	PQLQZK680K	COIL	
L9	PQLQZK1R0K	COIL	
		(CONNECTORS)	
CN1	311049020000	FLAT CABLE	S
CN2	311153020600	FLAT CABLE	S
DCG	301000700004	JACK	S
JACK	300223407032	JACK	S
		(RESISTORS)	
R1	ERDS2TJ220	22	
R2	ERJ3GEYJ103	10k	
R3	ERJ3GEYJ103	10k	
R5	ERJ3GEYJ683	68k	
R6	ERJ3GEYJ433	43k	S
R7	ERJ3GEYJ104	100k	
R8	ERJ3GEYJ335	3.3M	
R9	PQ4R10XJ471	470	S
R10	ERJ3GEYJ104	100k	
R12	ERD25TJ154	150k	
R13	ERJ3GEYJ472	4.7k	
R14	ERJ3GEYJ223	22k	
R15	ERJ3GEYJ473	47k	
R16	ERJ3GEYJ623	62k	S
R17	ERJ3GEYJ123	12k	
R18	ERD25TJ220	22k	

Ref. No.	Part No.	Part Name & Description	Remarks
R19	ERJ3GEYJ104	100k	
R20	ERJ3GEYJ104	100k	
R21	ERJ3GEYJ683	68k	
R22	ERJ3GEYJ104	100k	
R23	ERJ3GEYJ224	220k	
R24	ERJ3GEYJ561	560	
R25	ERD25TJ220	22	
R26	ERJ3GEYJ105	1M	
R27	ERJ3GEYJ563	56k	
R28	ERJ3GEYJ103	10k	
R29	ERJ3GEYJ223	22k	
R30	ERJ3GEYJ122	1.2k	
R31	ERJ3GEYJ202	2k	
R32	ERJ3GEYJ103	10k	
R33	ERD25TJ510	51	S
R34	ERJ3GEYJ222	2.2k	
R35	ERJ3GEYJ822	8.2k	
R36	ERJ3GEYJ223	22k	
R37	ERJ3GEYJ392	3.9k	
R38	ERJ3GEYJ104	100k	
R39	ERJ3GEYJ103	10k	
R40	ERJ3GEYJ274	270k	
R41	ERJ3GEYJ104	100k	
R42	ERJ3GEYJ684	680k	
R43	ERJ3GEYJ514	510k	
R44	PQMGC25TJ206	2M	
R45	PQMGC25TJ206	2M	
R46	ERJ3GEYJ514	510k	
R47	ERD25TJ101	100	
R48	ERDS2TJ103	10k	
R49	ERJ3GEY0R00	0	
R51	ERJ3GEY0R00	0	
R55	ERJ3GEYJ102	1k	
R56	ERJ3GEYJ103	10k	
R65	ERJ3GEYJ394	390k	
R66	ERJ3GEYJ473	47k	
R67	ERJ3GEYJ473	47k	
R68	ERJ3GEYJ152	1.5k	
R69	ERJ3GEYJ103	10k	
R70	231129100600	12	S
R71	ERDS2TJ000	0	S
R72	ERJ3GEYJ471	470	
R73	ERJ3GEYJ473	47k	
R74	ERJ3GEYJ184	180k	
R75	ERJ3GEYJ223	22k	
R83	ERJ3GEYJ104	100k	
R86	ERJ3GEYJ475	4.7M	
R88	ERJ3GEYJ153	15k	
R90	ERJ3GEYJ303	30k	
R92	ERJ3GEYJ623	62k	
R94	ERJ3GEYJ124	120k	
R96	ERJ3GEYJ244	240k	
R98	ERJ3GEYJ474	470k	
R99	ERJ3GEYJ244	240k	

Ref. No.	Part No.	Part Name & Description	Remarks
AR1	ERJ3GEYJ473	47k	
AR5	ERJ3GEYJ204	200k	
AR5	ERJ3GEYJ244	240k	
AR5	ERJ3GEYJ753	75k	
AR5	ERJ3GEYJ104	10k	
AR5	ERJ3GEYJ154	150k	
AR5	ERJ3GEYJ184	180k	
AR5	ERJ3GEYJ224	220k	
AR5	ERJ3GEYJ274	270k	
AR5	ERJ3GEYJ823	82k	
AR6	ERJ3GEYJ204	200k	
AR6	ERJ3GEYJ124	120k	
AR6	ERJ3GEYJ154	150k	
AR6	ERJ3GEYJ184	180k	
ER1	ERJ3GEYJ103	10k	
ER2	ERJ3GEYJ103	10k	
ER3	ERJ3GEYJ103	10k	
ER4	ERJ3GEYJ103	10k	
ER5	ERJ3GEY0R00	0	
JR1	ERJ3GEY0R00	0	
JR2	ERJ3GEY0R00	0	
R100	ERJ3GEYJ473	47k	
R101	ERJ3GEYJ470	47k	
R103	ERJ3GEYJ203	20k	
R104	ERJ3GEYJ363	36k	
R111	ERJ3GEYJ243	24k	
R201	ERJ3GEYJ103	10k	
R202	ERJ3GEYJ152	1.5k	
R207	ERJ3GEY0R00	0	
R208	ERJ3GEYJ303	30k	S
		(CAPACITORS)	
C1	ECUV1H221JCV	220P	
C2	ECUV1C104ZFV	0.1	
C3	ECUV1C104ZFV	0.1	
C4	ECUV1C224ZFV	0.22	
C5	ECUV1H103KBV	0.01	
C6	220101681300	0.1	S
C7	220101681309	0.01	S
C8	220101681309	0.01	S
C9	ECUV1C104ZFV	0.1	
C10	ECUV1C104ZFV	0.1	
C12	ECUV1C104ZFV	0.1	
C15	ECUV1C104ZFV	0.1	
C24	ECUV1C104ZFV	0.1	
C28	ECUV1H471JCV	470P	S
C29	ECUV1H103KBV	0.01	
C30	ECUV1C474ZFV	0.47	
C31	PQCUV1H104ZF	0.1	S
C32	223271150000	0.027	S
C33	ECUV1H103KBV	0.01	
C34	ECUV1H222KBV	0.0022	
C35	ECUV1C104ZFV	0.1	
C60	PQCUV1C225ZF	2.2	
C62	ECUV1H103KBV	0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C63	ECUV1H103KBV	0.01	
C64	ECUV1C104ZFV	0.1	
C65	ECUV1H220JCV	22P	
C66	ECUV1H180JCV	18P	
C73	ECUV1C104ZFV	0.1	
C74	ECUV1C104ZFV	0.1	
AE1	ECEA1AKA221	220	S
EC1	ECEA1CK101	100	
EC2	ECA1CM471	470	
EC3	ECEA1EU101	100	S
EC4	ECEA1HU100	10	S
EC7	ECEA1EU101	100	S
EC8	ECEA1CK102	1000	
EC9	ECEA1HU100	10	S
EC10	ECEA1AU470	47	
EC12	ECEA1HU2R2	2.2	
EC16	ECEA1HU4R7	4.7	
EC17	PQCUV1C105ZF	1	
EC18	PQCUV1C105ZF	1	
		(OTHERS)	
F1	354030100006	FUSE	S
RLY1	254080000013	RELAY	S
T4	258194190005	TRANS	S
VC1	280300400000	VARIABLE CAPACITOR	S
VDR1	218170900001	VARISTOR	S
X2	260000400017	CRYSTAL OSCILLATOR	S

27.1.3. Locator P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PQWP21461LAH	LOCATOR P.C.BOARD ASS'Y (RTL)	
		(LED)	
LED	335181605805	LED	S

27.1.4. RF P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB3	PQWP31461LAH	RF P.C.BOARD ASS'Y (RTL)	
		(IC)	
IC1	274085313120	IC	S
		(TRANSISTORS)	
Q506	203403111419	TRANSISTOR(SI)	S
Q509	203403111419	TRANSISTOR(SI)	S
Q510	203403111419	TRANSISTOR(SI)	S
Q512	203505180005	TRANSISTOR(SI)	S
Q555	203505180005	TRANSISTOR(SI)	S
Q556	203505180005	TRANSISTOR(SI)	S
		(DIODES)	
VD501	213024010006	DIODE(SI)	S
VD502	213024010006	DIODE(SI)	S
		(CERAMIC FILTERS)	
CF501	264100051001	CERAMIC FILTER	S
F1	264100051001	CERAMIC FILTER	S
		(COILS)	
L502	253200830200	COIL	S
L503	253250830200	COIL	S
L504	252330201801	COIL	S
		(RESISOTRS)	
R1	ERJ3GEYJ153	15k	
R2	ERJ3GEY0R00	0	
R3	ERJ3GEYJ273	27k	
R4	ERJ3GEYJ104	100k	
R6	ERJ3GEYJ152	1.5k	
R8	ERJ3GEYJ224	220k	
R9	ERJ3GEYJ274	270k	
R10	ERJ3GEYJ303	30k	
R11	ERJ3GEYJ563	56k	
R12	ERJ3GEYJ333	33k	
R15	ERJ3GEYJ683	68k	
R16	ERJ3GEYJ224	220k	
R17	ERJ3GEYJ223	22k	
R18	ERJ3GEYJ394	390k	
R19	ERJ3GEYJ273	27k	
R21	ERJ3GEYJ223	22k	
R501	ERJ3GEYJ184	180k	
R503	ERJ3GEYJ330	33	
R504	ERJ3GEYJ102	1k	
R509	ERJ3GEYJ102	1k	
R510	ERJ3GEYJ680	68	
R511	ERJ3GEYJ101	100	
R512	ERJ3GEYJ221	220	
R513	ERJ3GEYJ101	100	
R514	ERJ3GEYJ391	390	
R517	ERJ3GEYJ100	10	
R518	ERJ3GEYJ153	15k	
R520	ERJ3GEYJ103	10k	
R522	ERJ3GEYJ103	10k	
R524	ERJ3GEYJ221	220	
R531	ERJ3GEYJ103	10k	
R533	ERJ3GEYJ393	39k	
R534	ERJ3GEYJ821	820	

Ref. No.	Part No.	Part Name & Description	Remarks
R536	ERJ3GEYJ153	15k	
R537	ERJ3GEYJ221	220	
R541	ERJ3GEYJ102	1k	
R543	ERJ3GEYJ561	560	
R544	ERJ3GEYJ561	560	
R551	ERJ3GEYJ393	39k	
R561	ERJ3GEYJ101	100	
R562	ERJ3GEYJ124	120k	
R569	ERJ3GEYJ103	10k	
R571	ERJ3GEYJ102	1k	
R577	ERJ3GEYJ101	100	
R578	ERJ3GEYJ274	270k	
R585	ERJ3GEY0R00	0	
R593	ERJ3GEYJ102	1k	
R604	ERJ3GEYJ471	470	
R606	ERJ3GEYJ123	12k	
R609	ERJ3GEYJ123	12k	
R610	ERJ3GEYJ513	51k	
R611	ERJ3GEYJ273	27k	
R619	ERJ3GEY0R00	0	
R621	ERJ3GEY0R00	0	
R622	ERJ3GEY0R00	0	
C582	ERJ3GEY0R00	0	
		(CAPACITORS)	
C1	ECUV1H470JCV	47P	
C2	ECUV1C104ZFV	0.1	
C3	ECUV1H473MDV	0.047	S
C4	ECUV1H040CCV	4P	
C6	ECUV1C104ZFV	0.1	
C7	ECUV1H330JCV	33P	
C8	ECUV1C104ZFV	0.1	
C9	ECUV1C104ZFV	0.1	
C10	PQCUV1C105ZF	1	
C11	PQCUV1C225ZF	2	
C12	ECUV1H680JCV	68P	
C13	ECUV1C104ZFV	0.1	
C14	ECUV1H102KBV	0.001	
C15	ECUV1H473MD	0.047	S
C17	PQCUV1E104MD	0.1	S
C19	ECUV1C104ZFV	0.1	
C20	ECUV1H101JCV	100P	
C21	ECUV1C104ZFV	0.1	
C22	ECUV1C104ZFV	0.1	
C23	ECUV1C104ZFV	0.1	
C24	ECUV1H151JCV	150P	
C25	ECUV1C104ZFV	0.1	
C28	ECUV1C104ZFV	0.1	
C29	ECUV1C104ZFV	0.1	
C30	PQCUV1C105ZF	1	
C31	ECUV1C104ZFV	0.1	
C32	ECUV1C104ZFV	0.1	
C33	ECUV1C104ZFV	0.1	
C34	ECUV1H681JCV	680P	S
C35	ECUV1H682KBV	0.0068	

Ref. No.	Part No.	Part Name & Description	Remarks
C36	ECUV1H102KBV	0.001	
C37	ECUV1H010CCV	1P	
C38	ECUV1C104ZFV	0.1	
C39	ECUV1H121JCV	12P	S
C40	ECUV1H121JCV	120P	
C41	ECUV1H121JCV	120P	
C500	ECUV1H330JCV	33P	
C502	ECUV1H102KBV	0.001	
C503	ECUV1H680JCV	68P	
C504	PQCUV1E104MD	0.1	S
C505	ECUV1H680JCV	68P	
C519	ECUV1H070CCV	7P	
C521	PQCUV1E104MD	0.1	S
C526	PQCUV1E104MD	0.1	S
C527	ECUV1H030CCV	3P	
C530	ECUV1H680JCV	68P	
C533	ECUV1H100DCV	10P	
C534	PQCUV1C105ZF	1	
C535	ECUV1C104ZFV	0.1	
C536	ECUV1H123KBV	0.012	
C537	PQCUV1E104MD	0.1	S
C538	PQCUV1C105ZF	1	
C539	ECUV1H040CCV	4P	
C541	ECUV1H102KBV	0.001	
C542	ECUV1H100DCV	10P	
C543	ECUV1H330JCV	33P	
C545	ECUV1H040CCV	4P	
C546	ECUV1H060DCV	6P	S
C549	ECUV1H020CCV	2P	
C554	ECUV1H040CCV	4P	
C556	ECUV1H102KBV	0.001	
C559	PQCUV1C224ZF	0.22	
C560	ECUV1H102KBV	0.001	
C561	ECUV1H470JCV	47P	
C562	ECUV1H220JCV	22P	
C563	ECUV1H222KBV	0.0022	
C564	ECUV1H470JCV	47P	
C565	ECUV1H020CCV	2P	
C566	ECUV1H050CCV	5P	
C567	ECUV1H050CCV	5P	
C568	ECUV1H102KBV	0.001	
C569	ECUV1H100DCV	10P	
C570	PQCUV1E104MD	0.1	S
C571	ECUV1H680JCV	68P	
C572	ECUV1H470JCV	47P	
C573	ECUV1H010CCV	1P	
C574	ECUV1H060DCV	6P	S
C575	ECUV1H050CCV	5P	
C578	ECUV1H050CCV	5P	
C583	ECUV1H330JCV	33P	
C586	ECUV1H070CCV	7P	
C590	ECUV1H010CCV	1P	
C591	ECUV1H123KBV	0.012	
C592	PQCUV1E104MD	0.1	S

Ref. No.	Part No.	Part Name & Description	Remarks
C593	ECUV1H680JCV	68P	
C595	ECUV1H100DCV	10P	
C597	ECUV1H010CCV	1P	
C598	ECUV1H020CCV	2P	
C599	ECUV1H120JCV	12P	
C602	ECUV1H020CCV	2P	
C604	ECUV1H222KBV	0.0022	
C605	ECUV1H221JCV	220P	
ESC10	ECUV1C104ZFV	0.1	
R13	ECUV1H102KBV	0.001	
		(OTHERS)	
FL501	251093140116	DUPLEX	S
T1	250076000014	TRANS	S

27.2. Handset

27.2.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
101	332385301014	SPEAKER	
102	403390023000	FRONT CABINET	
103	404391120370	REAR CABINET	
104	406390020370	BATTERY COVER	
105	407391020370	ANTENNA	
106	407390023005	LCD PANEL	
107	408391020370	RINGER LEVER	
108	410207004100	KEYBOARD SWITCH	
109	420187100100	PET SHEET	
110	420197100000	PET SHEET	
111	432231500001	NAME LABEL	
112	461001000000	SPEAKER SHEET	
113	464100000000	RUBBER	
114	470216031000	CUSHION, URETHANE FORM	
115	470312501000	SPACER	
116	472310551000	PET SHEET	
117	PQWBTC1461	BATTERY	
118	151021208301	CHARGE TERMINAL	
119	151022208301	CHARGE TERMINAL	
120	472021052000	ADHESIVE TAPE	

27.2.2. Main P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB100	PQWP11461LAR	MAIN P.C.BOARD ASS'Y (RTL)	
		(IC)	
U1	PQWIC1464LAR	IC	S
		(TRANSISTORS)	
Q1	203394090029	TRANSISTOR(SI)	S
Q2	203396090000	TRANSISTOR(SI)	S
Q3	203396090000	TRANSISTOR(SI)	S
Q4	203112090005	TRANSISTOR(SI)	S
Q5	203396090000	TRANSISTOR(SI)	S
		(DIODES)	
D1	214418000000	DIODE(SI)	S
D2	214418000000	DIODE(SI)	S
D3	214418021000	DIODE(SI)	S
D4	214418021000	DIODE(SI)	S
D5	214418000000	DIODE(SI)	S
D6	214418000000	DIODE(SI)	S
D7	214418000000	DIODE(SI)	S
D8	214418021000	DIODE(SI)	S
D9	214418000000	DIODE(SI)	S
D10	214418000000	DIODE(SI)	S
D11	214418000000	DIODE(SI)	S
D12	214418021000	DIODE(SI)	S
D13	214418021000	DIODE(SI)	S
D16	214418021000	DIODE(SI)	S
D17	214418021000	DIODE(SI)	S
ZD1	212560600000	DIODE(SI)	S
		(LED)	
LED	335050300005	LED	S
		(COILS)	
L2	PQLQZK680K	COIL	
L3	PQLQZK680K	COIL	
		(RESISTORS)	
R1	PQ4R10XJ330	33	S
R2	ERJ3GEY0R00	0	
R4	ERJ3GEY0R00	0	
R5	ERJ3GEYJ154	150k	
R6	ERJ3GEYJ683	68k	
R7	ERJ3GEYJ105	1M	
R8	ERJ3GEYJ102	1k	
R12	ERJ3GEYJ473	47k	
R13	ERJ3GEY0R00	0	
R14	ERJ3GEYJ473	47k	
R15	ERJ3GEY0R00	0	
R16	ERJ3GEYJ473	47k	
R18	ERJ3GEY0R00	0	
R22	ERJ3GEYJ152	1.5k	
R23	ERJ3GEY0R00	0	
R24	ERDS2TJ394	390k	
R28	ERJ3GEYJ154	150k	
R29	ERJ3GEYJ472	4.7k	
R30	ERJ3GEYJ222	2.2k	
R31	ERJ3GEYJ682	6.8k	
R32	ERJ3GEYJ104	100k	
R33	ERJ3GEYJ104	100k	

Ref. No.	Part No.	Part Name & Description	Remarks
R34	ERJ3GEYJ103	10k	
R35	ERJ3GEYJ103	10k	
R36	ERJ3GEYJ103	10k	
R37	ERJ3GEYJ473	47k	
R39	ERJ3GEYJ103	10k	
R40	ERJ3GEYJ104	100k	
R41	ERJ3GEYJ104	100k	
R43	ERJ3GEYJ104	100k	
R44	ERJ3GEYJ103	10k	
R45	ERJ3GEYJ103	10k	
R46	ERJ3GEYJ152	1.5k	
R48	ERJ3GEYJ105	1M	
R53	ERJ3GEYJ104	100k	
R54	ERJ3GEYJ103	10k	
R55	ERJ3GEYJ201	200	
R56	ERJ3GEYJ220	22	
R63	ERJ3GEYJ222	2.2k	
R65	ERJ3GEYJ103	10k	
R67	ERJ3GEYJ102	1k	
		(CAPACITORS)	
C1	ECUV1C104ZFV	0.1	
C2	ECFD1C104KD	0.1	S
C3	ECUV1H102KBV	0.001	
C8	PQCUV1C225ZF	2.2	
C38	ECKD1H103KB	0.01	S
C40	ECUV1H331JCV	330P	S
C43	ECUV1C104ZFV	0.1	
C44	ECUV1H180JCV	18P	
C58	ECUV1C474ZFV	0.47	
C201	ECUV1C104ZFV	0.1	
C202	ECUV1C104ZFV	0.1	
AC2	ECUV1C104ZFV	0.1	
AC3	ECUV1H103KBV	0.01	
EC2	PQCUV1C105ZF	1	
EC4	ECEA1AKA221	220	
EC5	221220360100	220	
EC13	PQCUV1C105ZF	1	
		(OTHERS)	
BATT	310020040004	BATTERY JACK	S
CN2	311152020500	FLAT CABLE	S
E101	330128051107	RINGER	S
E102	333609700100	MICROPHONE	S
E103	324124008040	SLIDE SWITCH	S
VC1	280300510007	VARIABLE CAPACITOR	S
X1	260000400017	CRYSTAL OSCILLATOR	S

27.2.3. RF P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB200	PQWP21461LAR	RF P.C.BOARD ASS'Y (RTL)	
		(IC)	
IC1	274085313220	IC	S
		(TRANSISTORS)	
Q506	203403111419	TRANSISTOR(SI)	S
Q509	203403111419	TRANSISTOR(SI)	S
Q510	203403111419	TRANSISTOR(SI)	S
Q512	203505180005	TRANSISTOR(SI)	S
Q555	203505180005	TRANSISTOR(SI)	S
Q556	203505180005	TRANSISTOR(SI)	S
		(DIODES)	
VD501	213024010006	DIODE(SI)	S
VD502	213024010006	DIODE(SI)	S
		(CERAMIC FILTERS)	
CF501	264100051001	CERAMIC FILTER	S
F1	264100051001	CERAMIC FILTER	S
		(COILS)	
L502	253200830200	COIL	S
L503	253250830200	COIL	S
L504	252330201801	COIL	S
FL501	251096040116	COIL	S
		(RESISTORS)	
R1	ERJ3GEYJ153	15k	
R2	ERJ3GEY0R00	0	
R3	ERJ3GEYJ273	27k	
R4	ERJ3GEYJ104	100k	
R5	ERJ3GEYJ104	100k	
R6	ERJ3GEYJ152	1.5k	
R8	ERJ3GEYJ474	470k	
R9	ERJ3GEYJ274	270k	
R10	ERJ3GEYJ682	6.8k	
R11	ERJ3GEYJ513	51k	
R12	ERJ3GEYJ273	27k	
R15	ERJ3GEYJ154	150k	
R16	ERJ3GEYJ753	75k	
R17	ERJ3GEYJ223	22k	
R501	ERJ3GEYJ184	180k	
R503	ERJ3GEYJ330	33	
R504	ERJ3GEYJ102	1k	
R509	ERJ3GEYJ102	1k	
R510	ERJ3GEYJ150	15	
R511	ERJ3GEYJ301	300	S
R512	ERJ3GEYJ221	220	
R513	ERJ3GEYJ301	300	S
R514	ERJ3GEYJ101	100	
R517	ERJ3GEYJ100	10	
R518	ERJ3GEYJ153	15k	
R520	ERJ3GEYJ103	10k	
R522	ERJ3GEYJ103	10k	
R524	ERJ3GEYJ221	220	
R531	ERJ3GEYJ103	10k	
R533	ERJ3GEYJ303	30k	
R534	ERJ3GEYJ821	820	
R536	ERJ3GEYJ153	15k	

Ref. No.	Part No.	Part Name & Description	Remarks
R537	ERJ3GEYJ221	220	
R541	ERJ3GEYJ102	1k	
R543	ERJ3GEYJ331	330	
R544	ERJ3GEYJ331	330	
R551	ERJ3GEYJ203	20k	
R561	ERJ3GEYJ101	100	
R562	ERJ3GEYJ124	120k	
R569	ERJ3GEYJ103	10k	
R571	ERJ3GEYJ102	1k	
R577	ERJ3GEYJ101	100	
R578	ERJ3GEYJ274	270k	
R585	ERJ3GEY0R00	0	
R593	ERJ3GEYJ102	1k	
R604	ERJ3GEYJ471	470	
R606	ERJ3GEYJ123	12k	
R609	ERJ3GEYJ123	12k	
R610	ERJ3GEYJ513	51k	
R611	ERJ3GEYJ273	27k	
R619	ERJ3GEY0R00	0	
R621	ERJ3GEY0R00	0	
R622	ERJ3GEY0R00	0	
R16A	ERJ3GEYJ433	43k	
R16A	ERJ3GEYJ513	51k	
R16A	ERJ3GEYJ623	62k	
R16A	ERJ3GEYJ753	75k	
R16A	ERJ3GEYJ913	91k	
R16A	ERJ3GEYJ473	47k	
R16A	ERJ3GEYJ563	56k	
R16A	ERJ3GEYJ683	68k	
R16A	ERJ3GEYJ823	82k	
JR1	ERJ3GEY0R00	0	
		(CAPACITORS)	
C1	ECUV1H470JCV	47P	
C2	ECUV1C104ZFV	0.1	
C3	ECUV1H473MDV	0.047	S
C4	ECUV1H040CCV	4P	
C5	ECUV1H221JCV	220P	
C6	ECUV1C104ZFV	0.1	
C7	ECUV1H331JCV	330P	S
C8	ECUV1C104ZFV	0.1	
C9	ECUV1C104ZFV	0.1	
C10	PQCUV1C105ZF	1	
C11	PQCUV1C225FV	2.2	
C12	ECUV1H680JCV	68P	
C13	ECUV1C104ZFV	0.1	
C15	ECUV1H473MD	0.047	S
C17	ECUV1H103KBV	0.01	
C19	ECUV1C104ZFV	0.1	
C20	ECUV1H101JCV	100P	
C21	ECUV1C104ZFV	0.1	
C22	ECUV1C104ZFV	0.1	
C23	ECUV1C104ZFV	0.1	
C24	ECUV1H151JCV	150P	
C25	ECUV1C104ZFV	0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C28	ECUV1C104ZFV	0.1	
C29	ECUV1C104ZFV	0.1	
C30	PQCUV1C105ZF	1	
C31	ECUV1C104ZFV	0.1	
C32	ECUV1C104ZFV	0.1	
C33	ECUV1C104ZFV	0.1	
C34	ECUV1H681JCV	680P	
C35	ECUV1H682KBV	0.0068	
C36	ECUV1H122KBV	0.0012	
C37	ECUV1H010CCV	1P	
C39	ECUV1H121JCV	120P	
C500	ECUV1H330JCV	33P	
C502	ECUV1H102KBV	0.001	
C503	ECUV1H680JCV	68P	
C504	ECUV1H103KBV	0.01	
C519	ECUV1H040CCV	4P	
C521	ECUV1H103KBV	0.01	
C526	ECUV1H103KBV	0.01	
C527	ECUV1H030CCV	3P	
C530	ECUV1H680JCV	68P	
C533	ECUV1H100DCV	10P	S
C534	PQCUV1C105ZF	1	
C535	ECUV1C104ZFV	0.1	
C536	ECUV1H123KBV	0.012	
C537	PQCUV1E104MD	0.1	S
C538	PQCUV1C105ZF	1	
C539	ECUV1H040CCV	4P	
C541	ECUV1H102KBV	0.001	
C542	ECUV1H100DCV	10P	
C543	ECUV1H330JCV	33P	
C545	ECUV1H030CCV	3P	
C546	ECUV1H060DCV	6P	S
C549	ECUV1H020CCV	2P	
C554	ECUV1H040CCV	4P	
C556	ECUV1H102KBV	0.001	
C559	PQCUV1C224ZF	0.22	
C560	ECUV1H102KBV	0.001	
C561	ECUV1H470JCV	47P	
C562	ECUV1H220JCV	22P	
C563	ECUV1H222KBV	0.0022	
C564	ECUV1H470JCV	47P	
C565	ECUV1H020CCV	2P	
C566	ECUV1H050CCV	5P	
C567	ECUV1H040CCV	4P	
C568	ECUV1H102KBV	0.001	
C569	ECUV1H100DCV	10P	S
C570	ECUV1H103KBV	0.01	
C571	ECUV1H680JCV	68P	
C572	ECUV1H470JCV	47P	
C573	ECUV1H010CCV	1P	
C574	ECUV1H060DCV	6P	S
C575	ECUV1H060DCV	6P	S
C578	ECUV1H060DCV	6P	S
C582	ECUV1H040CCV	4P	

Ref. No.	Part No.	Part Name & Description	Remarks
C583	ECUV1H330JCV	33P	
C586	ECUV1H150JCV	15P	
C590	ECUV1H030CCV	3P	
C591	ECUV1H123KBV	0.012	
C592	PQCUV1E104MD	0.1	S
C593	ECUV1H680JCV	68P	
C595	ECUV1H100DCV	10P	S
C597	ECUV1H010CCV	1P	
C598	ECUV1H020CCV	2P	
C599	ECUV1H150JCV	15P	
C602	ECUV1H010CCV	1P	
C604	ECUV1H222KBV	0.0022	
C605	ECUV1H270JCV	27P	
EC2	ECEA1HKS3R3S	3.3	
ESC10	ECUV1C104ZFV	0.1	
R13	ECUV1H102KBV	0.001	
		(OTHERS)	
T1	250076000014	TRANS	S
VR1	237472054900	VARIABLE RESISTOR	S

27.3. Accessories and Packing Materials

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQJA10088Z	TEL CORD	
A2	PQWATC1461BX	AC ADAPTOR	⚠
A3	435207101000	CHARGE CARD	
A4	PQQX13566Z	INSTRUCTION BOOK	
P1	444203316100	ACCESSORY BOX	
P2	444203317100	PAD	
P3	444203317200	ANTENNA PAD	
P4	491320123010	POLY BAG (for Base Unit)	
P5	491300010210	POLY BAG (for Handset)	
P6	PQPK13892Z	CARTON BOX	

28. FOR SCHEMATIC DIAGRAM

28.1. Base Unit (SCHEMATIC DIAGRAM (BASE UNIT))

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.

Important Safety Notice:
Components identified by ⚠ ; mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer´s specified parts.

28.2. Handset (SCHEMATIC DIAGRAM (HANDSET))

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.

29. SCHEMATIC DIAGRAM (BASE UNIT)

29.1. Main

29.2. RF Module

30. SCHEMATIC DIAGRAM (HANDSET)

30.1. Main

30.2. RF Module

31. CIRCUIT BOARD (BASE UNIT)

31.1. Main (Component View)

31.2. Main (Flow Solder Side View)

31.3. Locator (Component View)

31.4. Locator (Flow Solder Side View)

31.5. RF Module

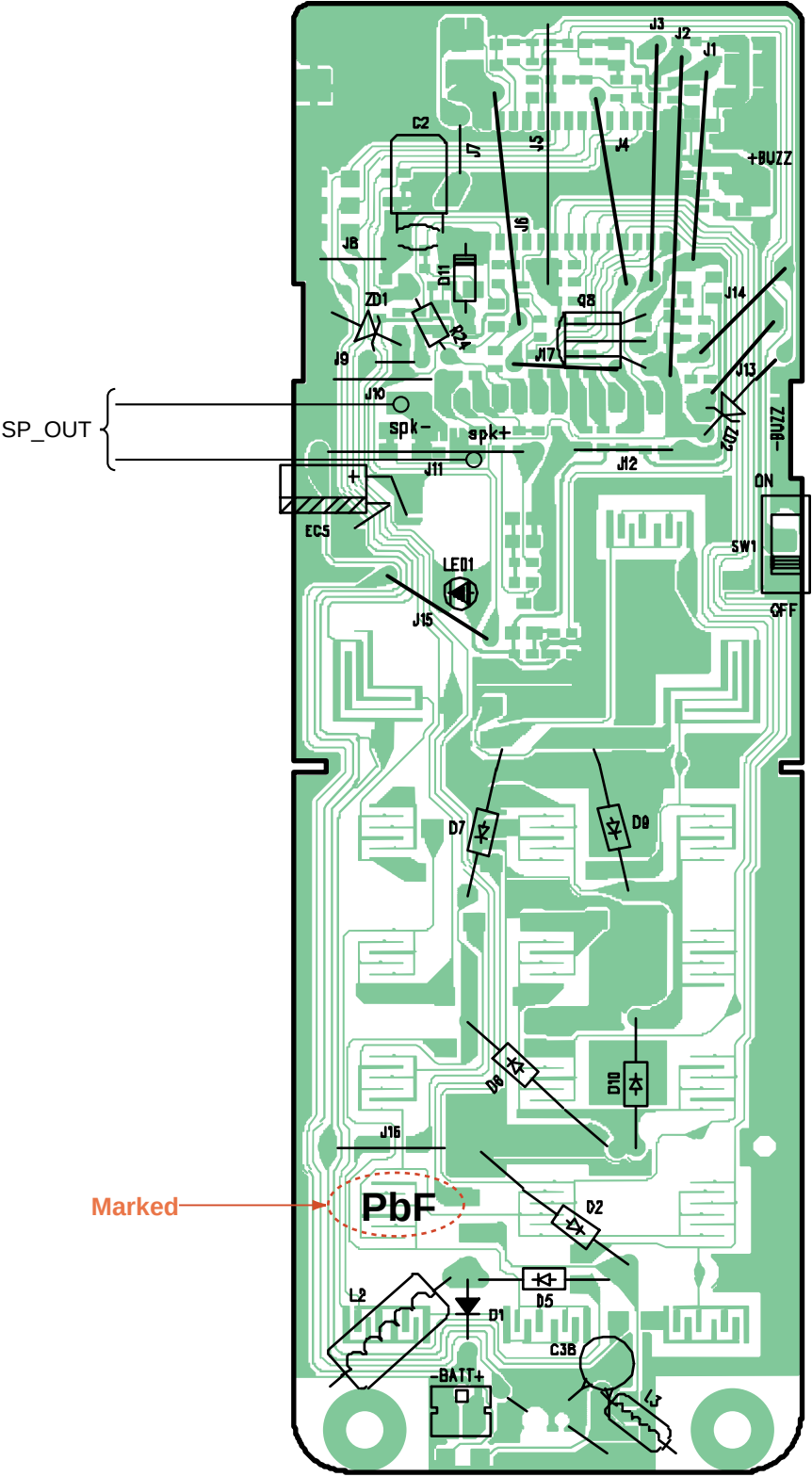
32. CIRCUIT BOARD (HANDSET)

32.1. Main (Component View)

32.2. Main (Flow Solder Side View)

32.3. RF Module

M / KXTC1464LCB-AK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J14
J9
J17
J13
J10
spk-
spk+
ZD2
-BUZZ
J11
J12
ON
EC5
SW1
LED1
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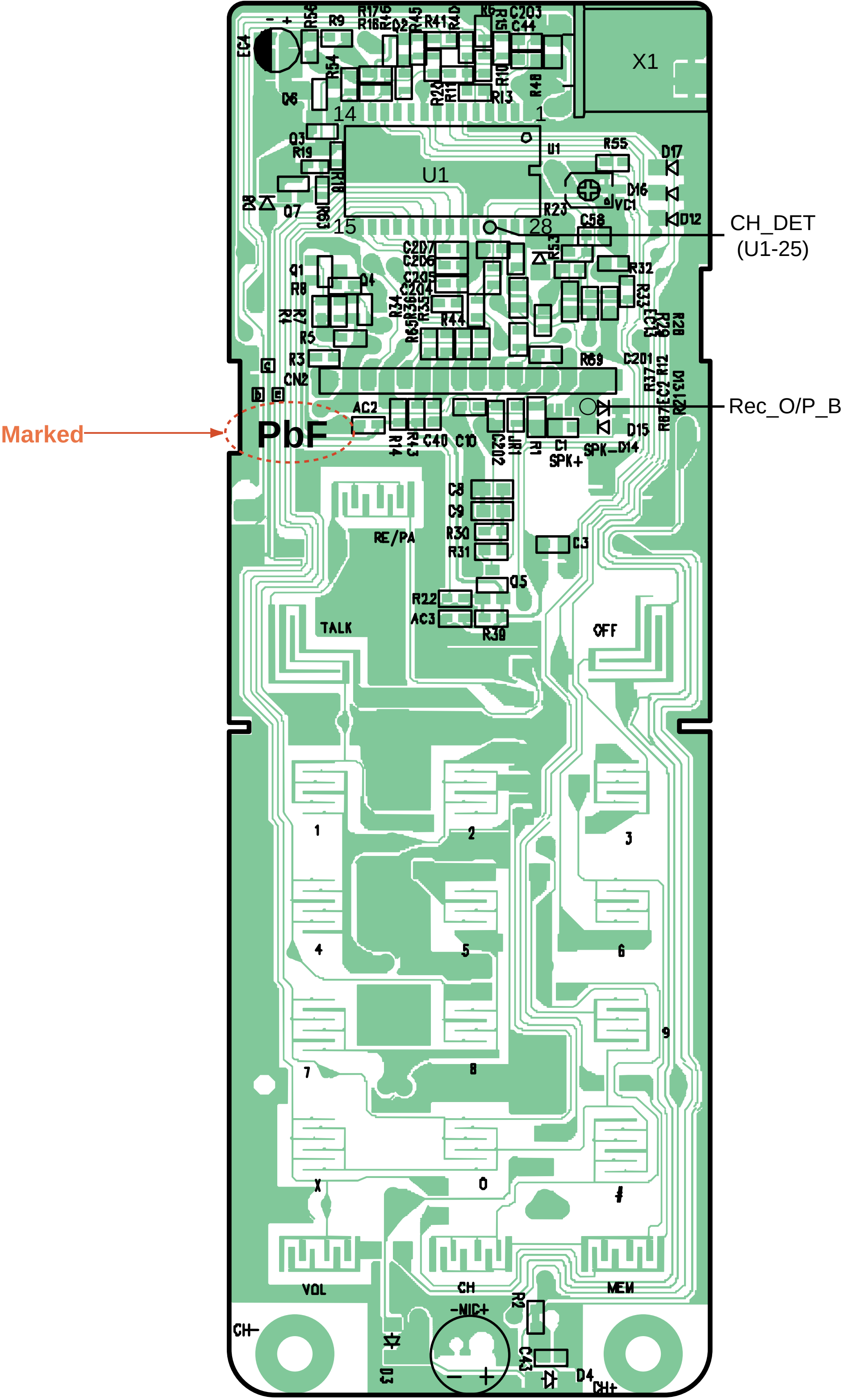
J15
D7
D9
D8
D10
J16
D2
L2
D5
D1
C3B
-BATT+
L3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CH_DET
(U1-25)
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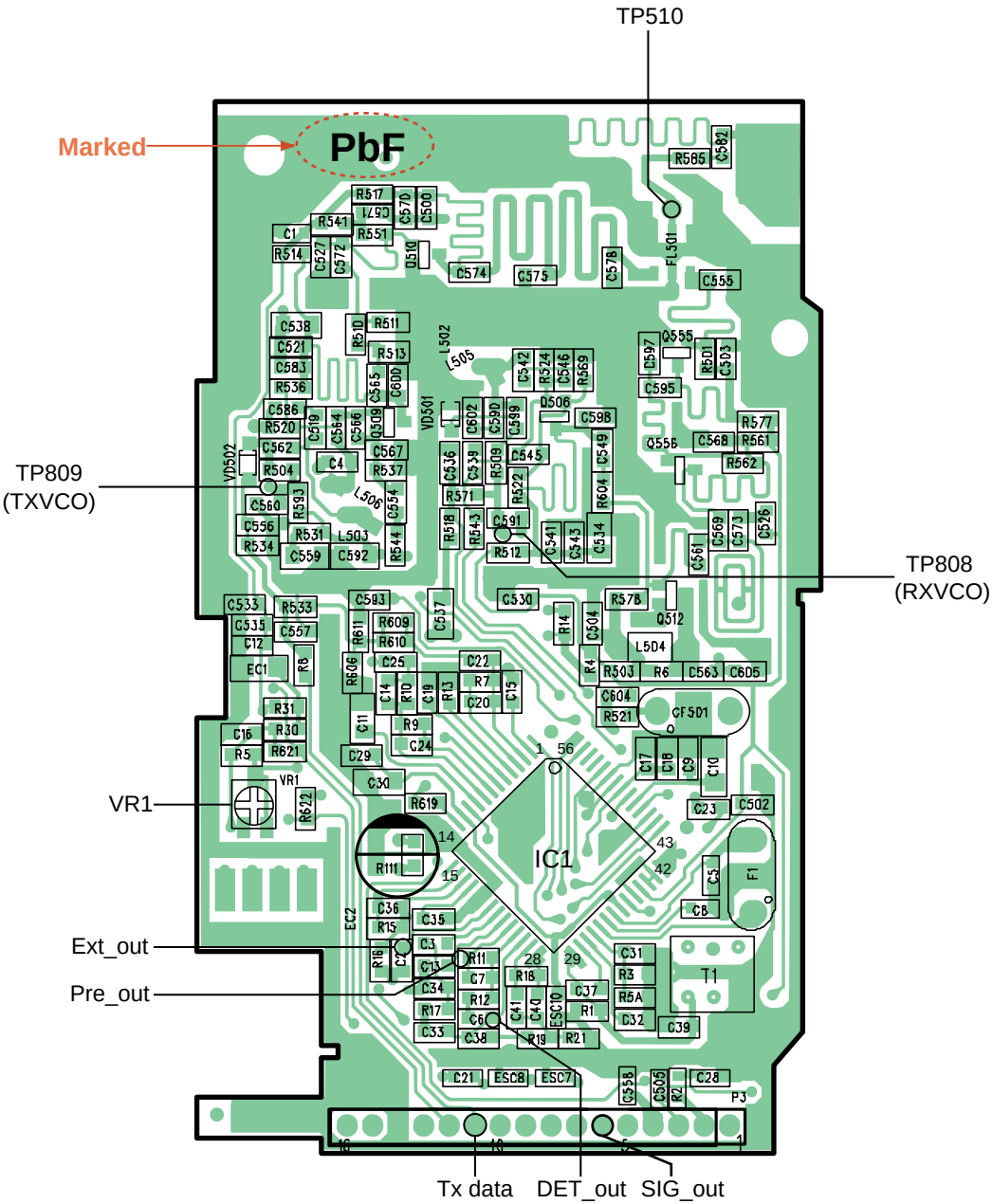
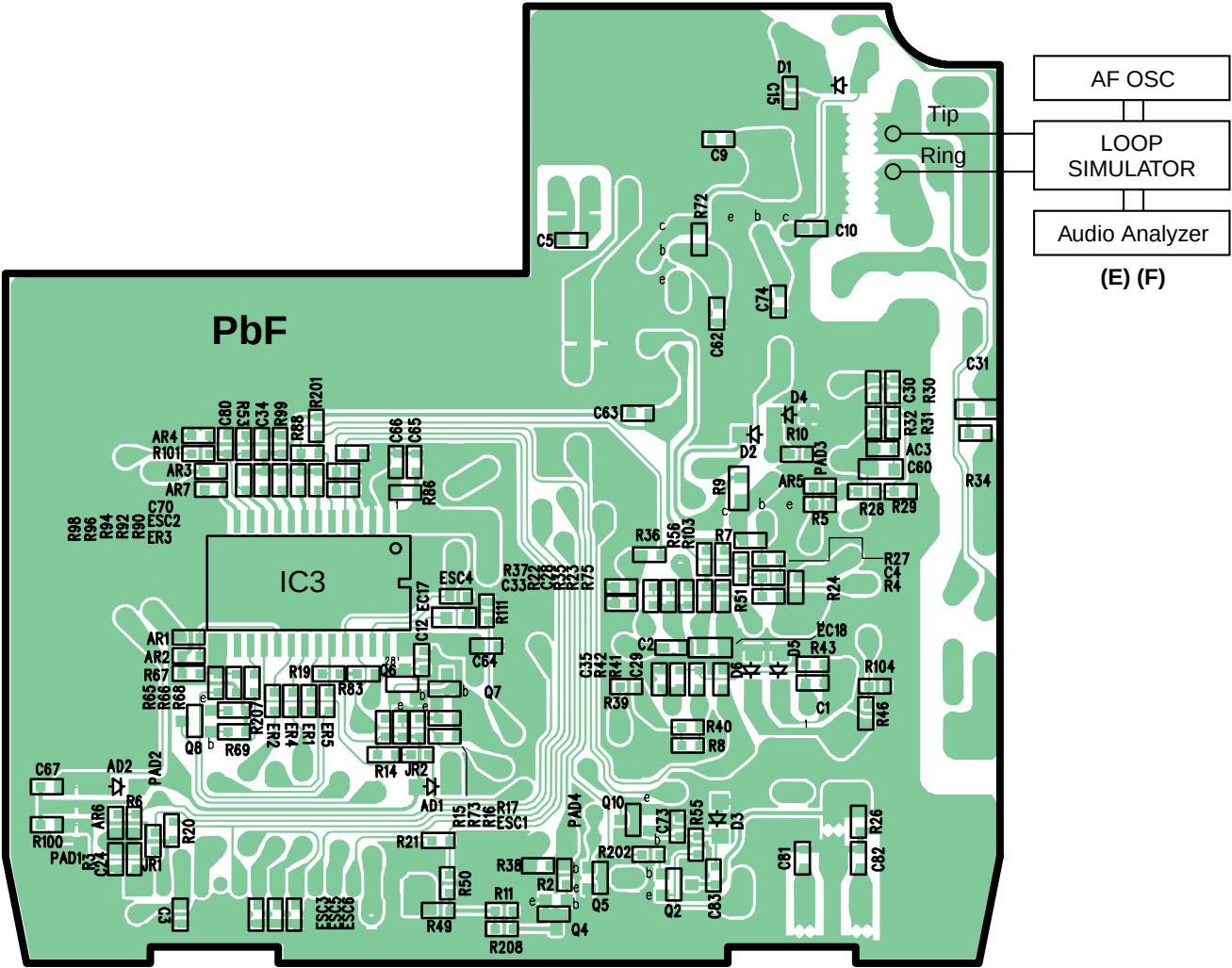
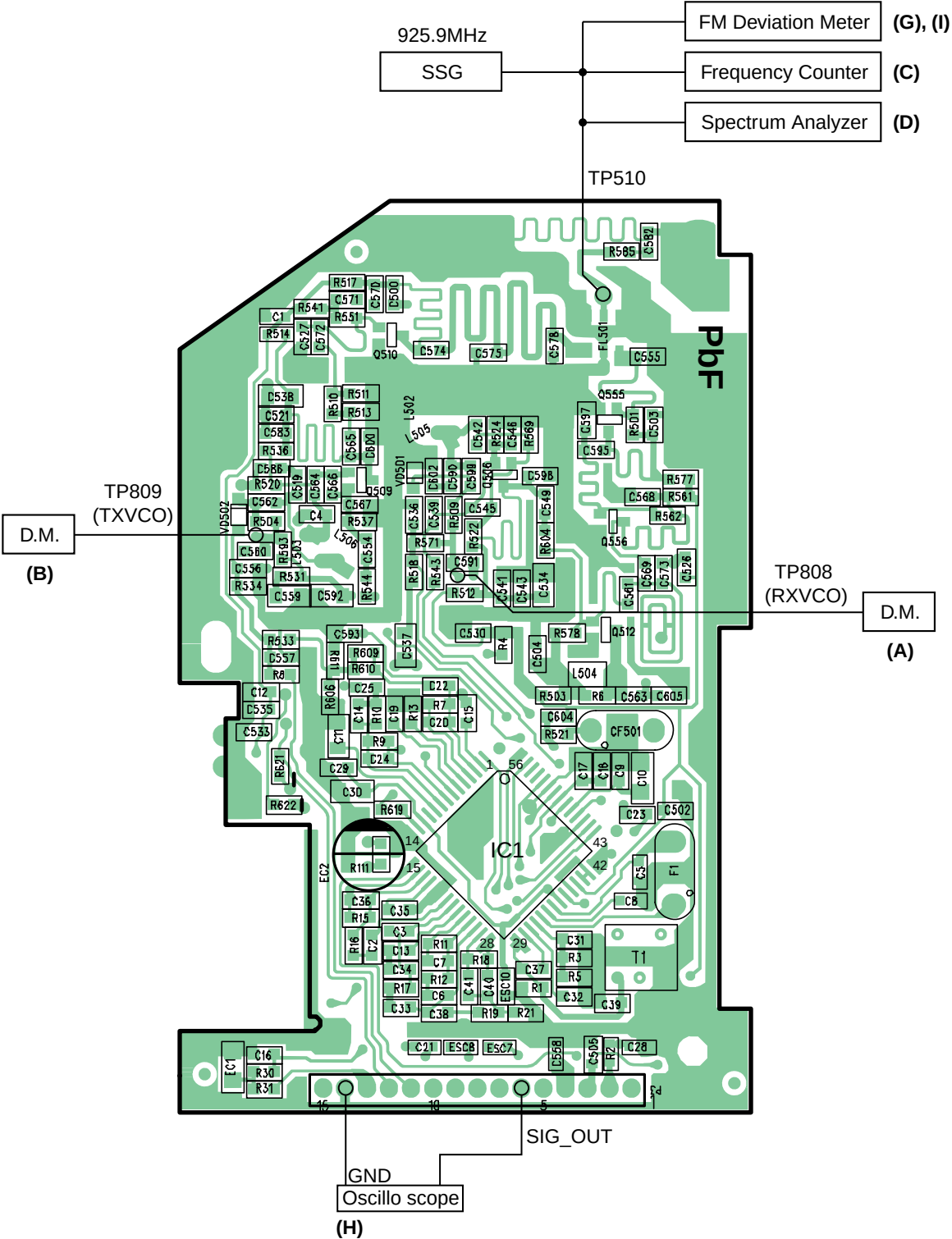
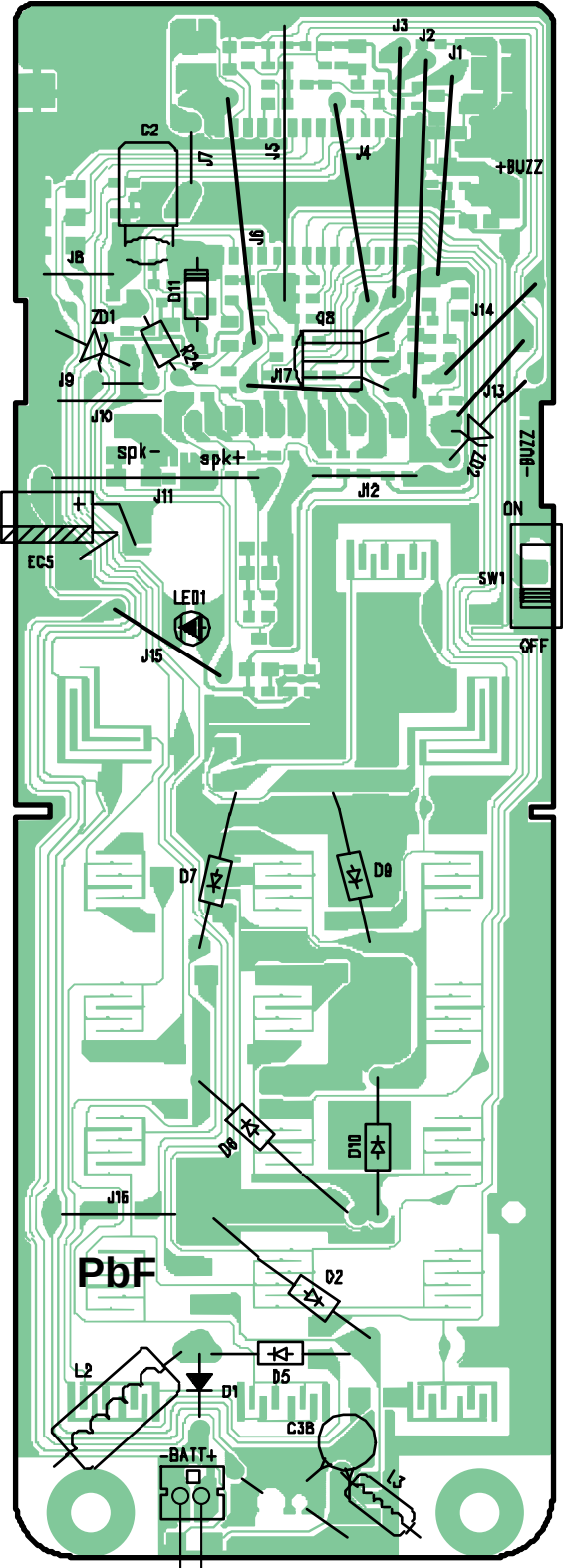
RE/PA
TALK
OFF
1
2
3
4
5
6
7
8
9
X
0
#
VOL
CH
MEM
CH-
CH+
-MIC+


TP510
Marked
PbF
TP809
(TXVCO)
TP808
(RXVCO)
VR1
Ext_out
Pre_out
IC1
Tx data
DET_out
SIG_out

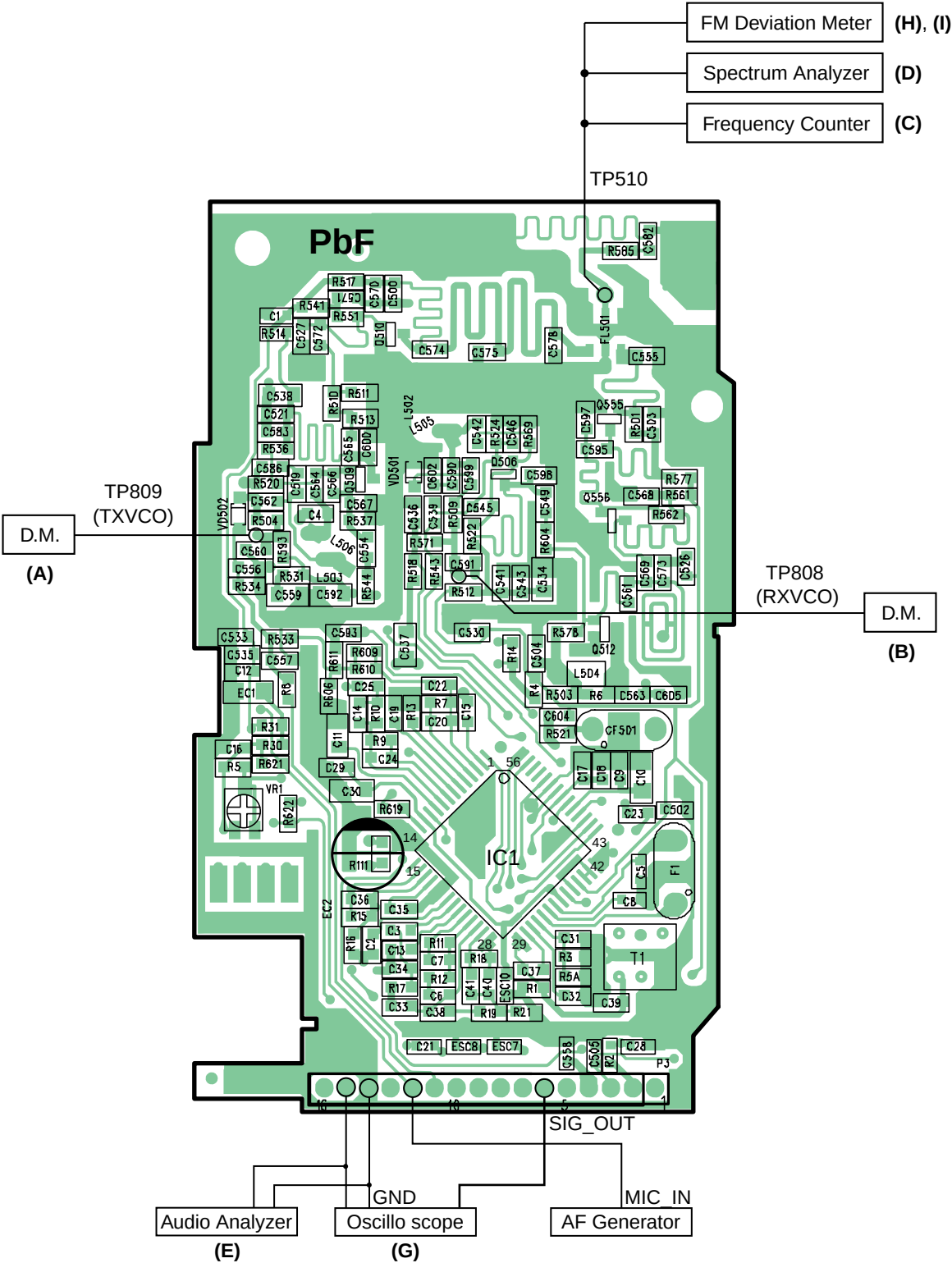

PbF
IC3
AF OSC
LOOP SIMULATOR
Audio Analyzer
Tip
Ring
(E) (F)

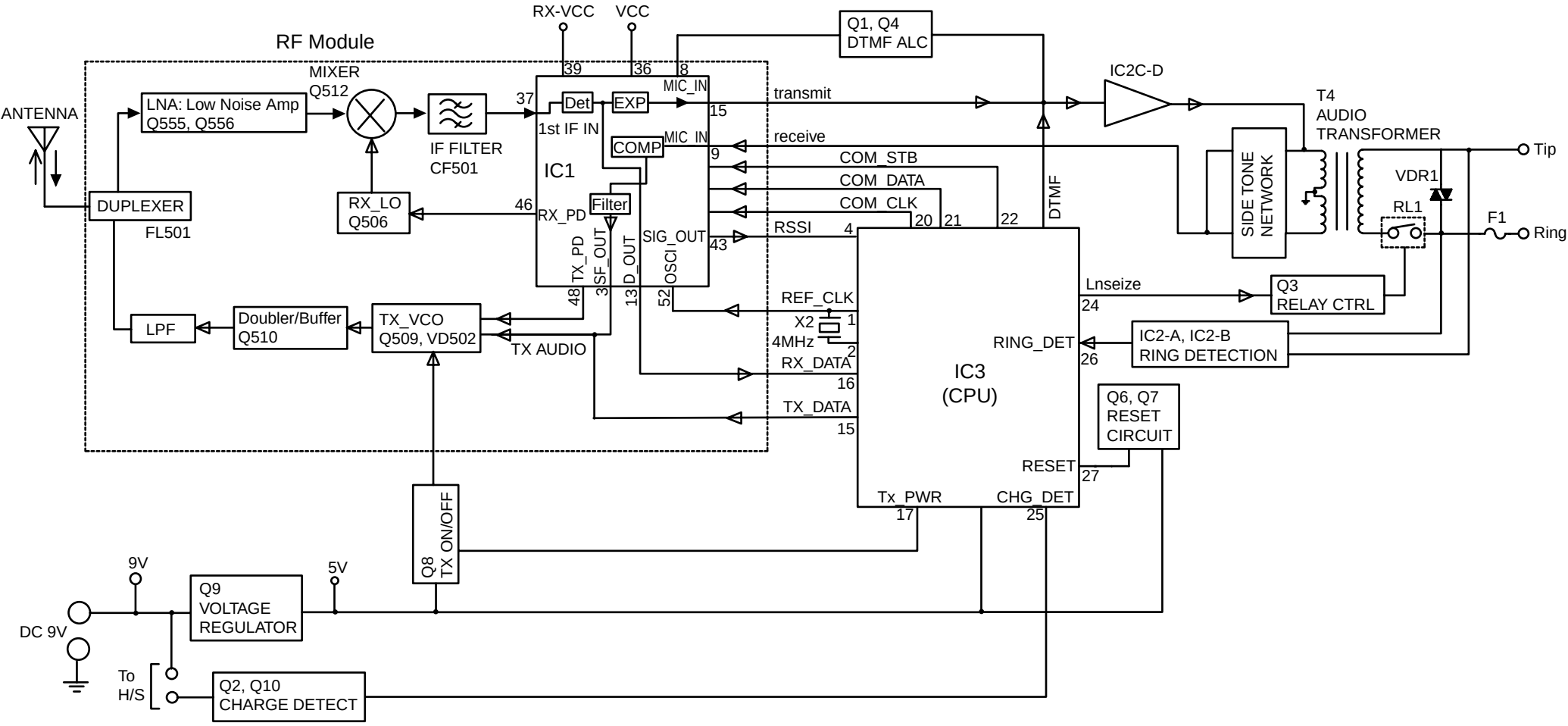

925.9MHz
SSG
FM Deviation Meter
(G), (I)
Frequency Counter
(C)
Spectrum Analyzer
(D)
TP510
TP809
(TXVCO)
D.M.
(B)
TP808
(RXVCO)
D.M.
(A)
PbF
IC1
CF501
T1
F1
GND
Oscillo scope
(H)
SIG_OUT



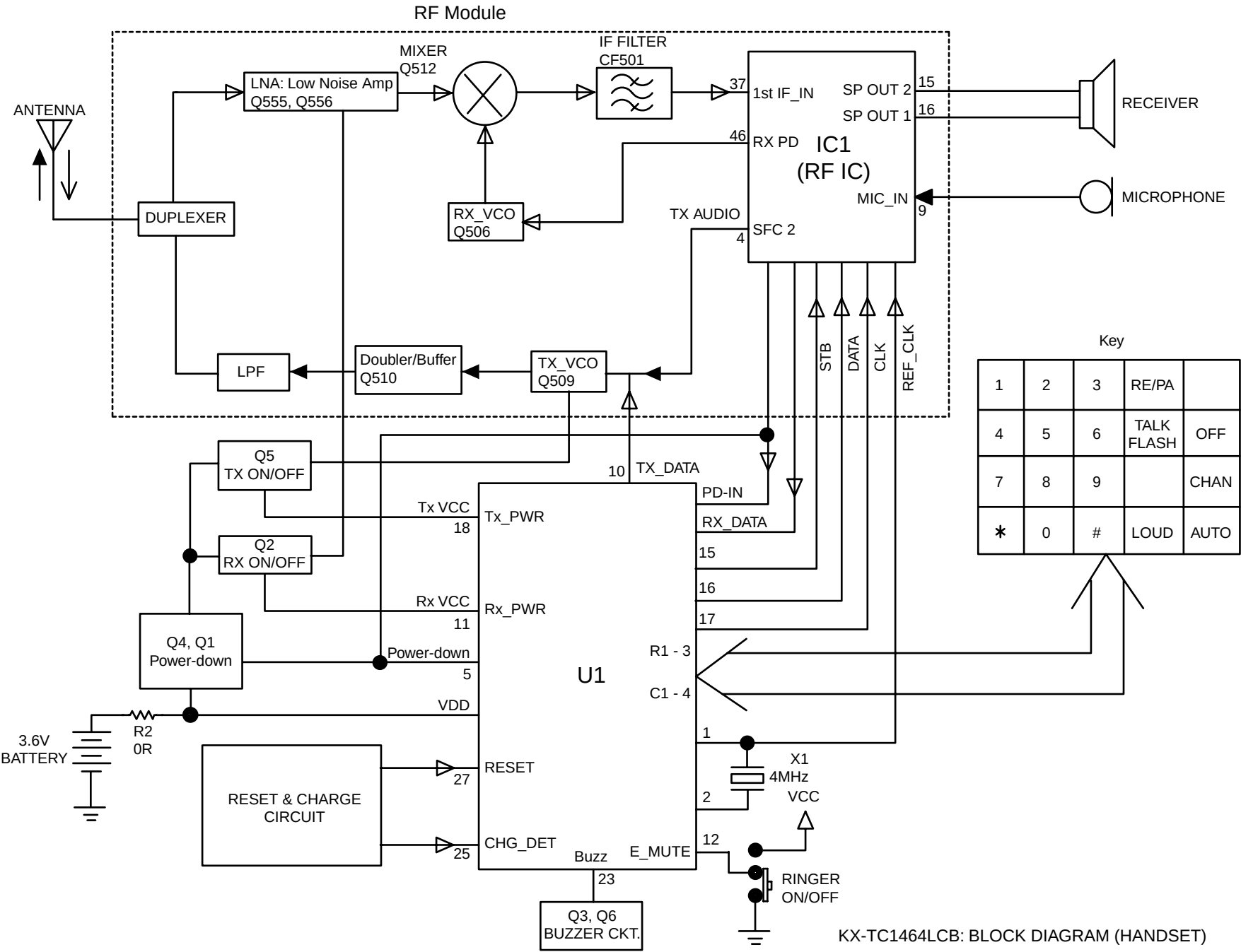
DC Power

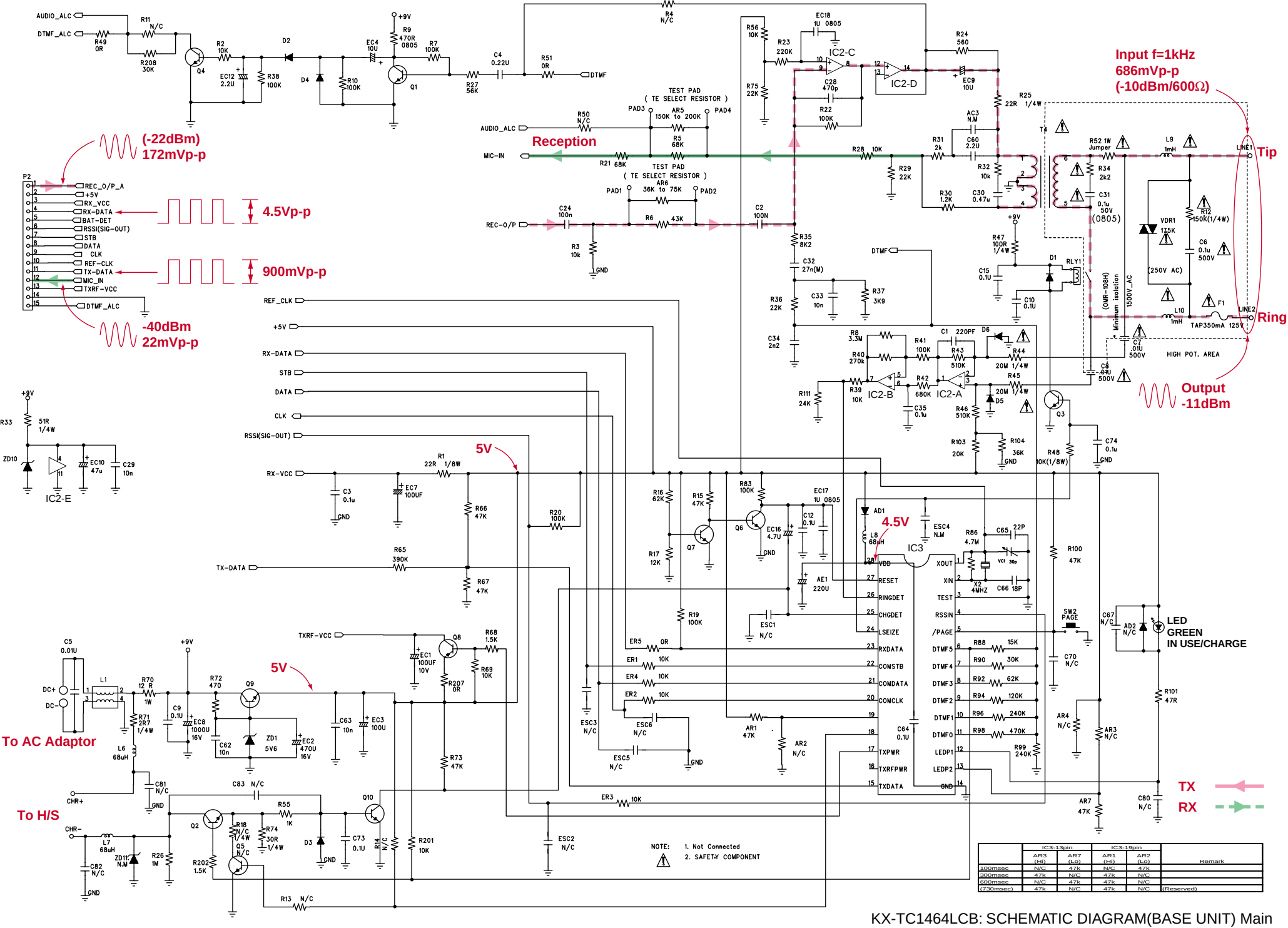
Supply (Battery)


FM Deviation Meter
(H), (I)
Spectrum Analyzer
(D)
Frequency Counter
(C)
TP510
PbF
TP809
(TXVCO)
D.M.
(A)
TP808
(RXVCO)
D.M.
(B)
IC1
SIG_OUT
GND
MIC_IN
Audio Analyzer
(E)
Oscillo scope
(G)
AF Generator

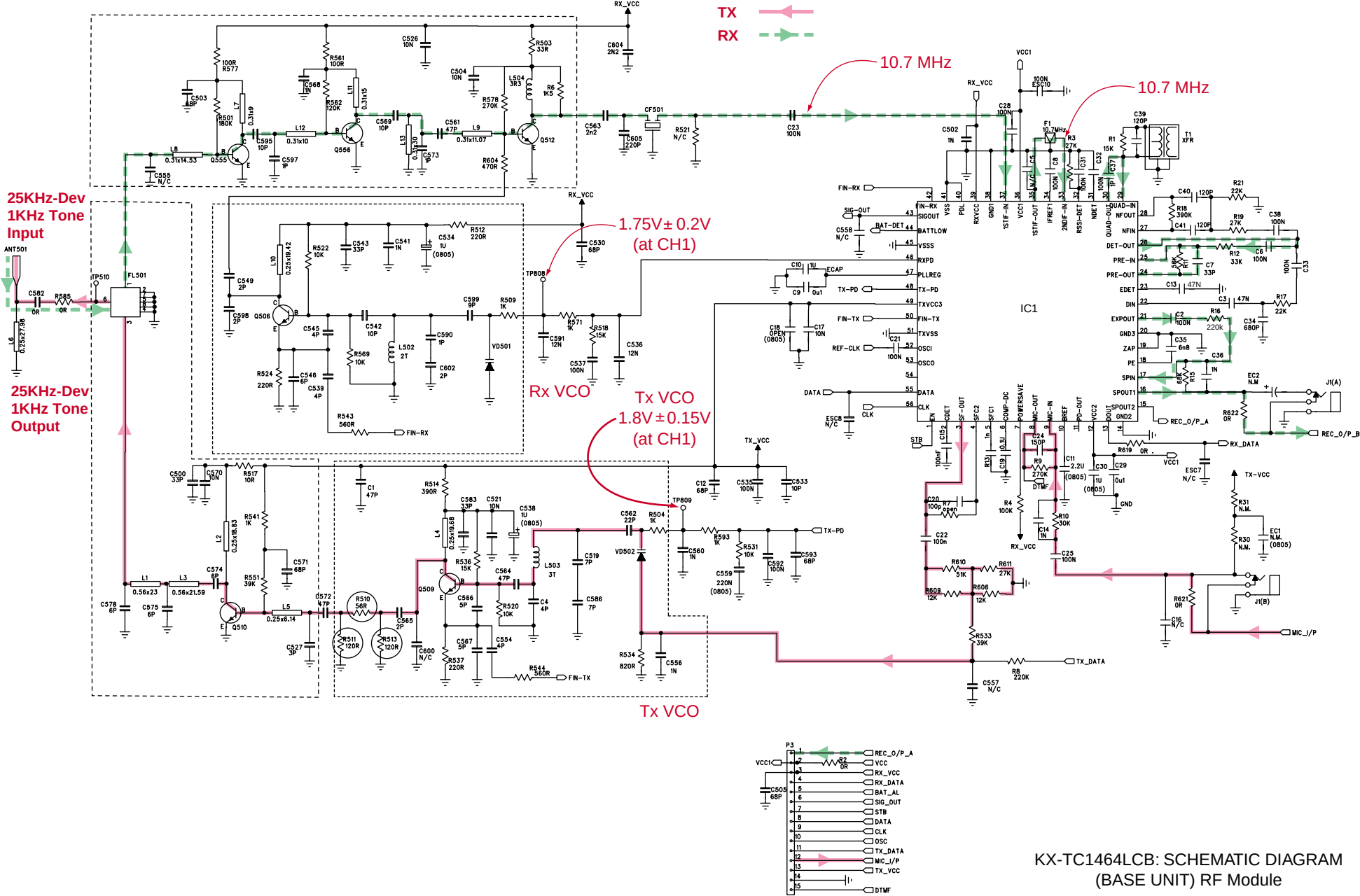


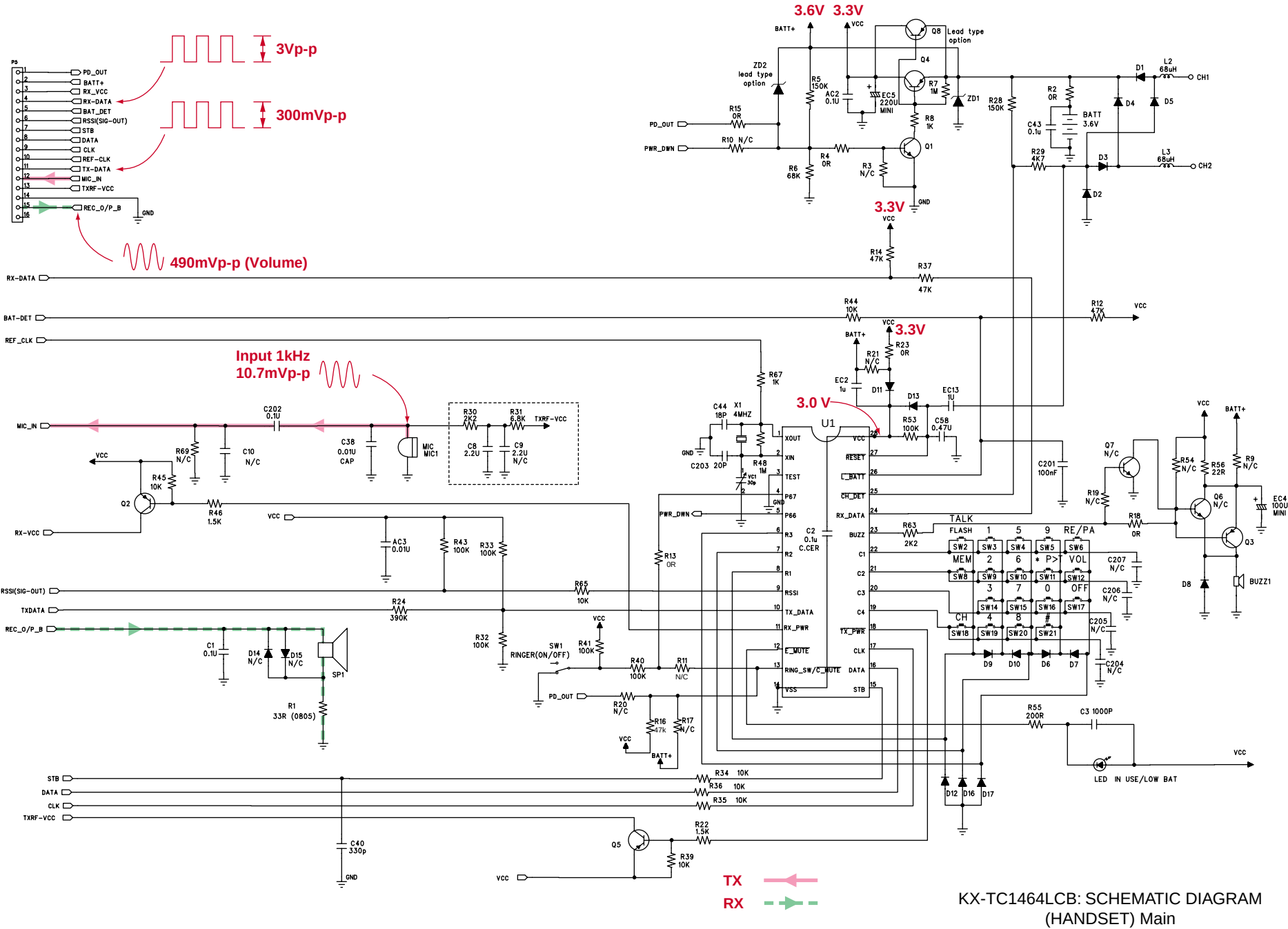
KX-TC1464LCB: BLOCK DIAGRAM (BASE UNIT)


RF Module
ANTENNA
DUPLEXER
LNA: Low Noise Amp
Q555, Q556
MIXER
Q512
IF FILTER
CF501
RX_VCO
Q506
37
1st IF_IN
46
RX PD
IC1
(RF IC)
TX AUDIO
4
SFC 2
SP OUT 2
15
SP OUT 1
16
RECEIVER
MIC_IN
9
MICROPHONE
LPF
Doubler/Buffer
Q510
TX_VCO
Q509
STB
DATA
CLK
REF_CLK
Key
1 2 3 RE/PA
4 5 6 TALK FLASH OFF
7 8 9 CHAN
* 0 # LOUD AUTO
Q5
TX ON/OFF
Q2
RX ON/OFF
Q4, Q1
Power-down
10
TX_DATA
PD-IN
Tx VCC
18
Tx_PWR
RX_DATA
15
16
Rx VCC
11
Rx_PWR
17
Power-down
5
R1 - 3
C1 - 4
U1
VDD
R2
0R
3.6V
BATTERY
1
X1
4MHz
2
VCC
RESET & CHARGE
CIRCUIT
27
RESET
25
CHG_DET
Buzz
E_MUTE
12
23
RINGER
ON/OFF
Q3, Q6
BUZZER CKT.
KX-TC1464LCB: BLOCK DIAGRAM (HANDSET)

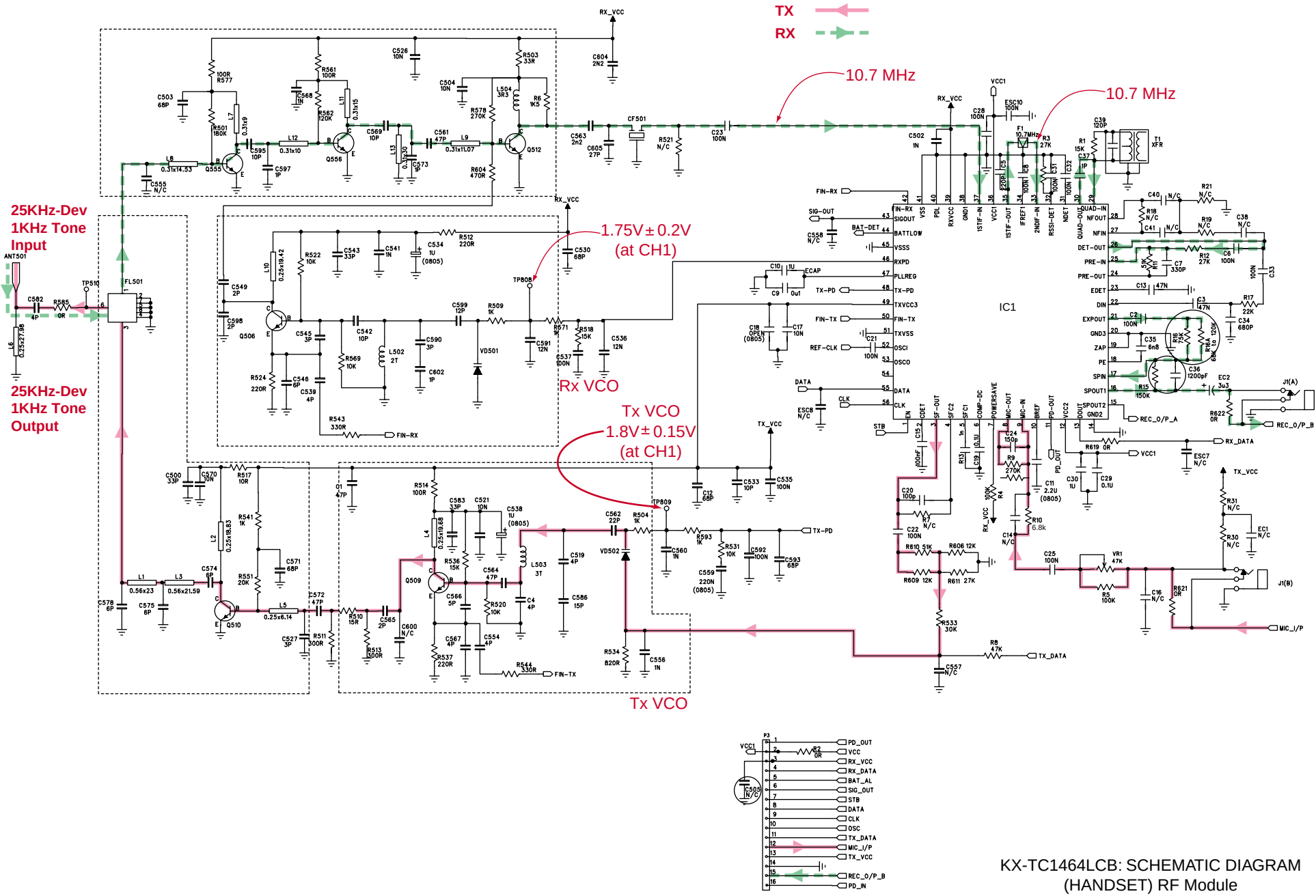


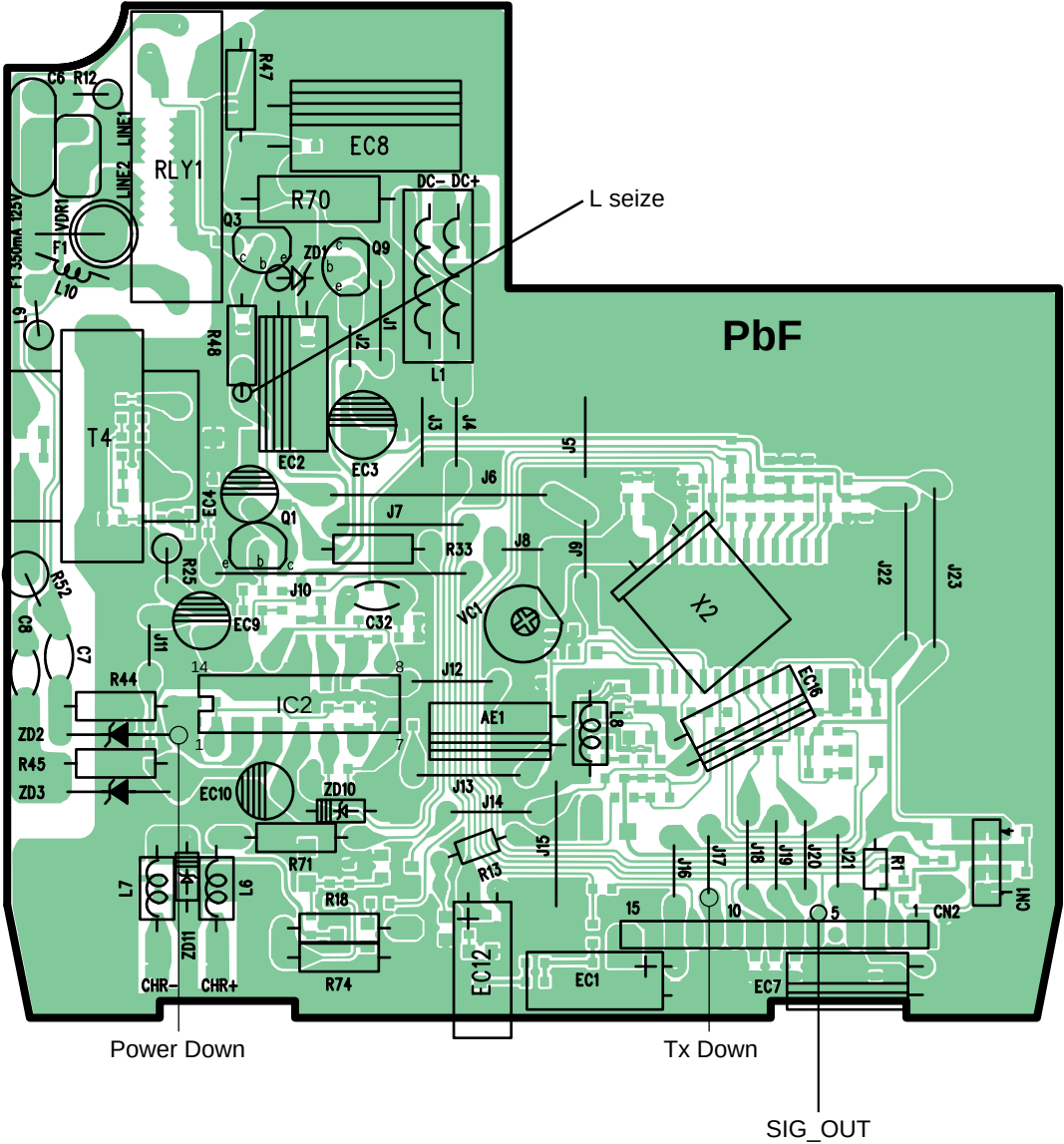
	IC3-13pin		IC3-19pin		
	AR3 (Hi)	AR7 (Lo)	AR1 (Hi)	AR2 (Lo)	Remark
100msec	N/C	47k	N/C	47k	
300msec	47k	N/C	47k	N/C	
600msec	N/C	47k	47k	N/C	
(730msec)	47k	N/C	47k	N/C	(Reserved)


TX
RX
10.7 MHz
10.7 MHz
25KHz-Dev
1KHz Tone
Input
25KHz-Dev
1KHz Tone
Output
1.75V± 0.2V
(at CH1)
Rx VCO
Tx VCO
1.8V ± 0.15V
(at CH1)
Tx VCO
IC1
KX-TC1464LCB: SCHEMATIC DIAGRAM
(BASE UNIT) RF Module

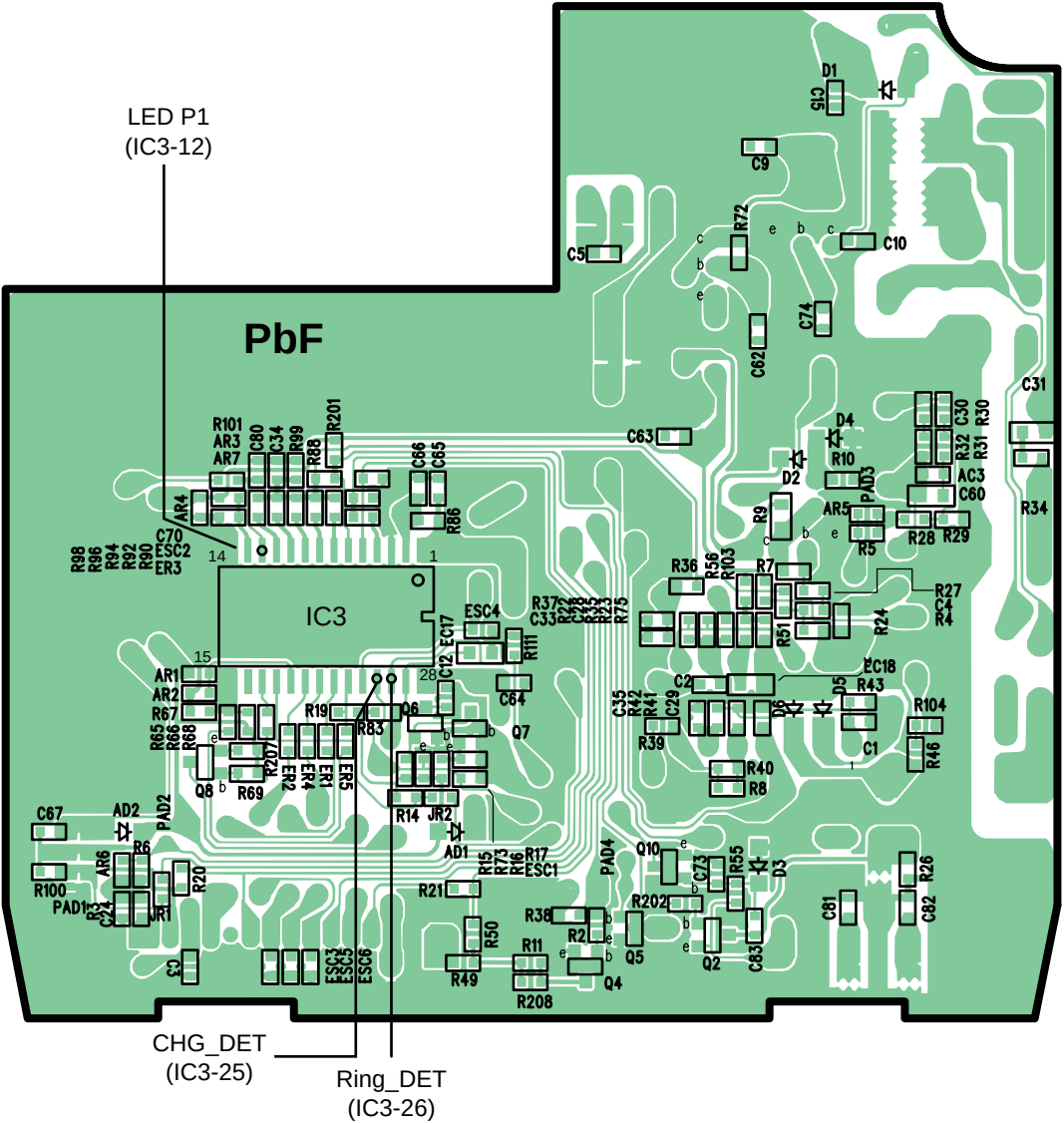


KX-TC1464LCB: SCHEMATIC DIAGRAM
(HANDSET) Main

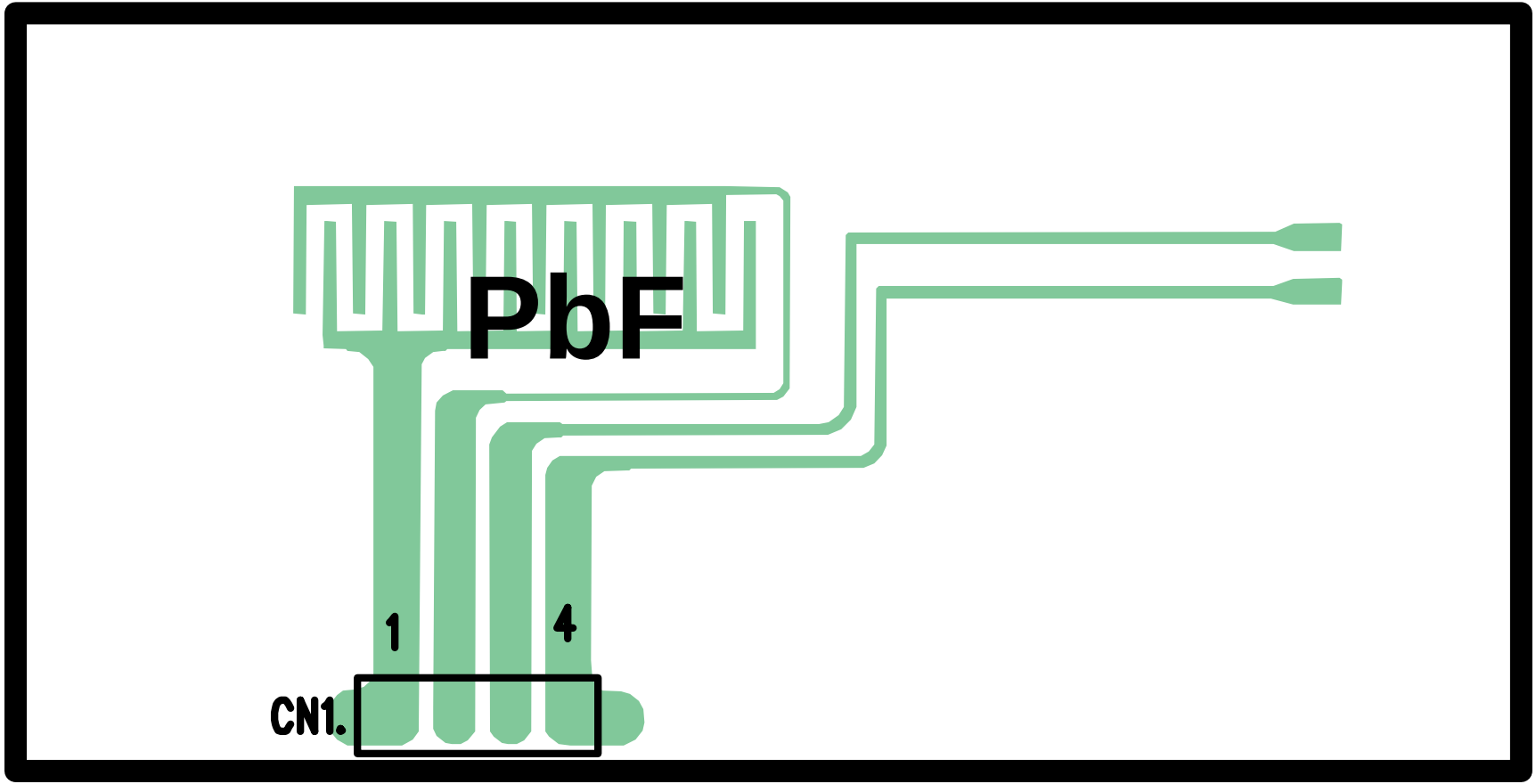

TX
RX
10.7 MHz
10.7 MHz
25KHz-Dev
1KHz Tone
Input
25KHz-Dev
1KHz Tone
Output
1.75V ± 0.2V
(at CH1)
Rx VCO
Tx VCO
1.8V ± 0.15V
(at CH1)
Tx VCO
IC1
KX-TC1464LCB: SCHEMATIC DIAGRAM
(HANDSET) RF Module



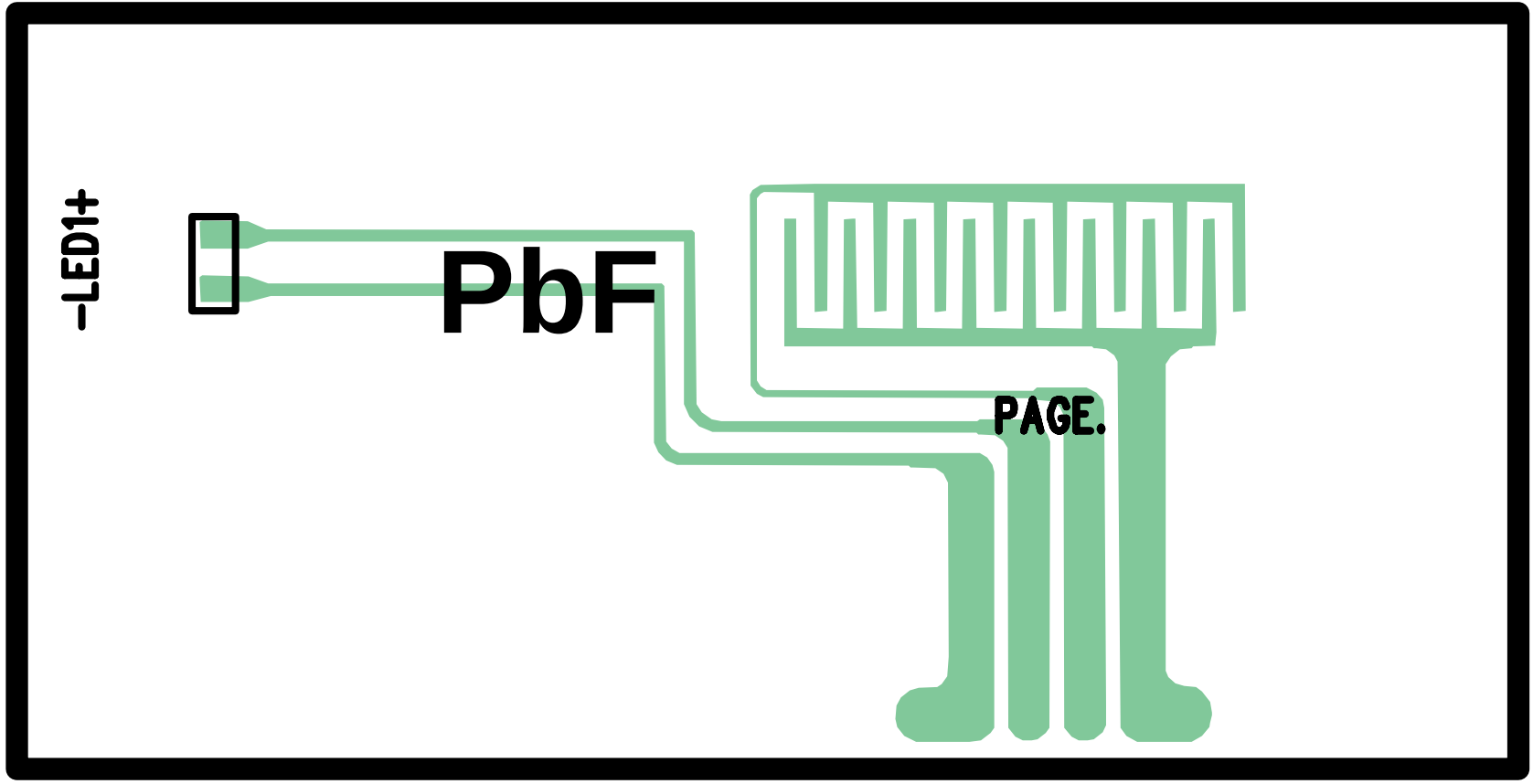
KX-TC1464LCB: BASE UNIT Main (Component View)



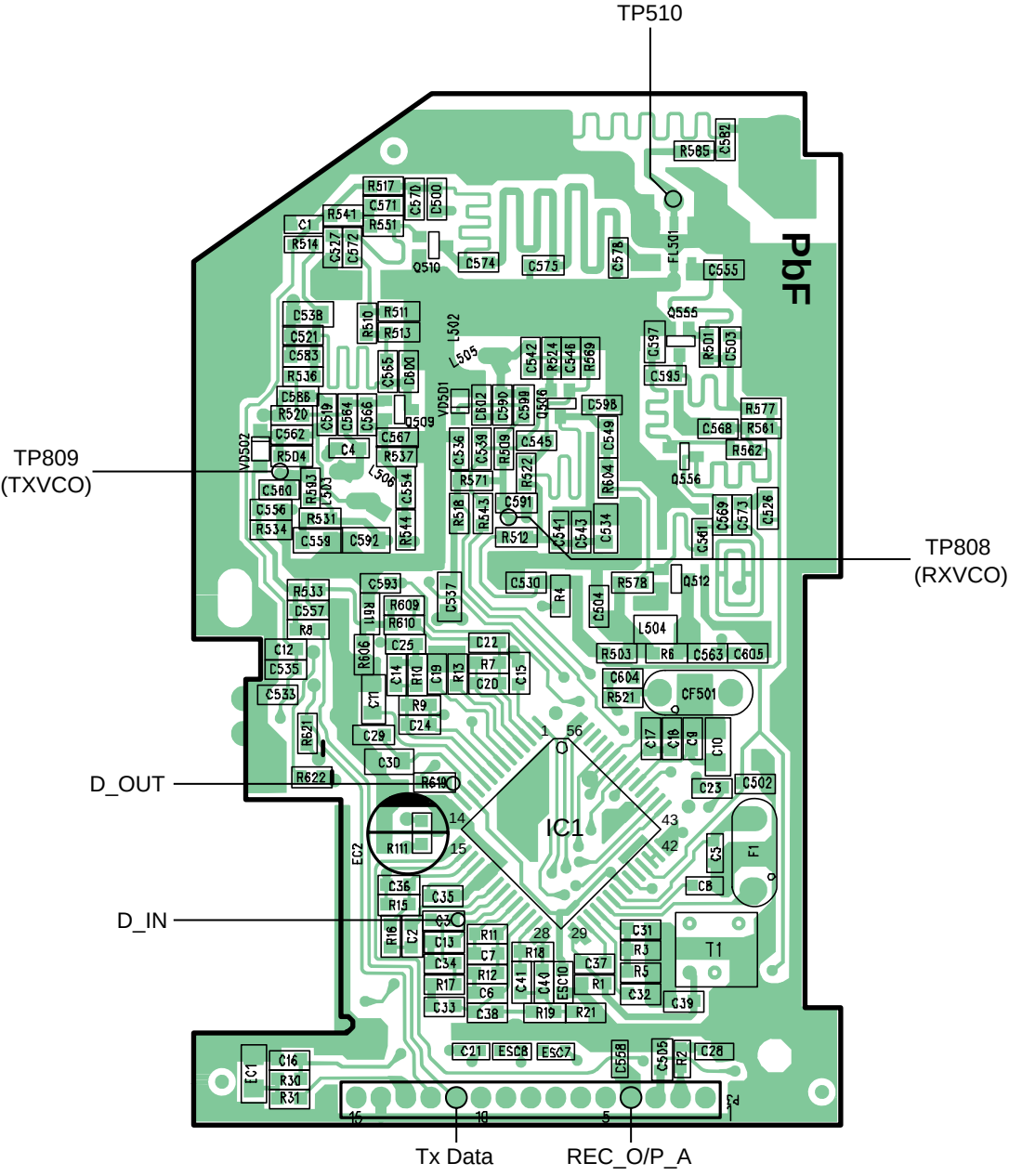
KX-TC1464LCB: BASE UNIT Main (Flow Solder Side View)



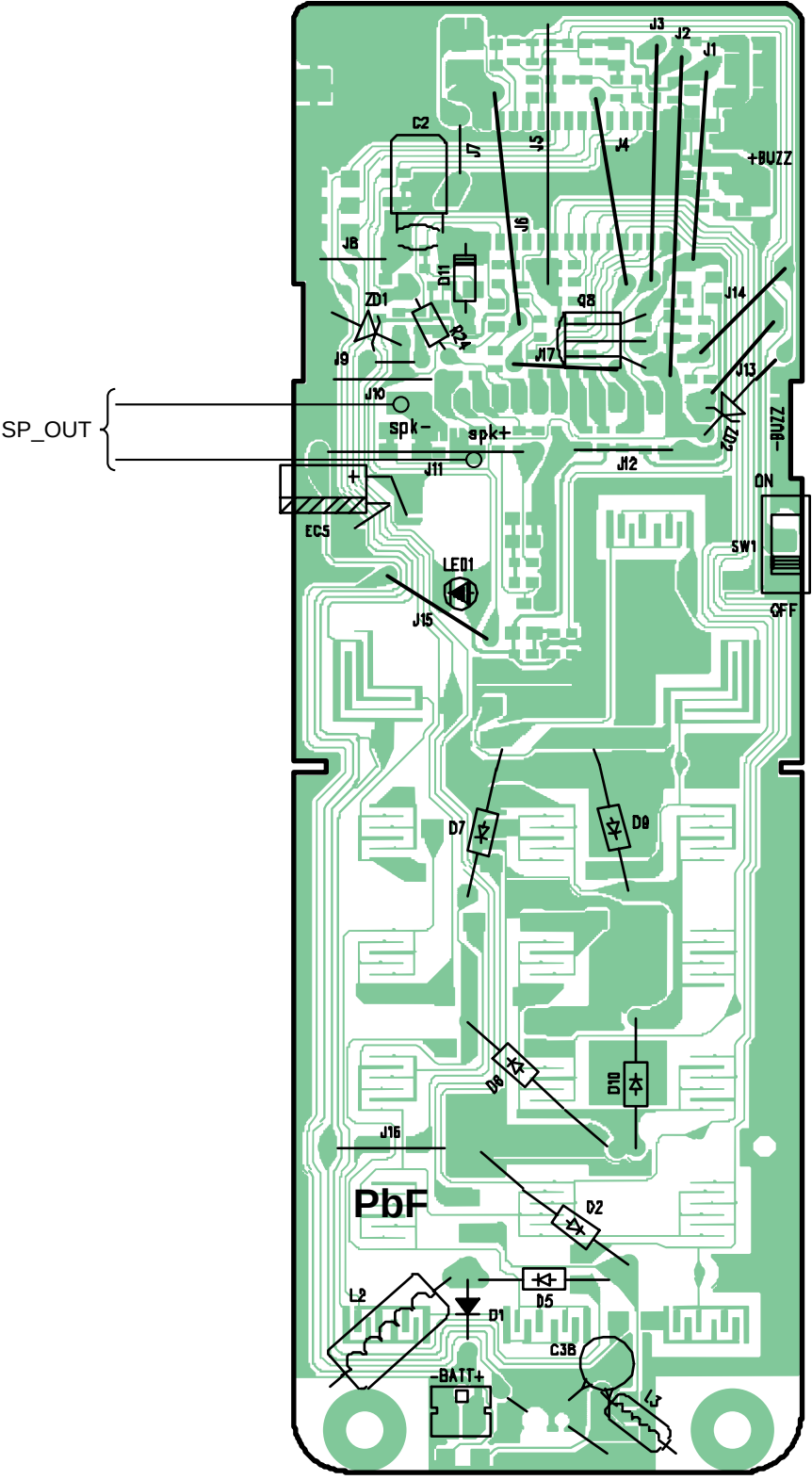
KX-TC1464LCB: BASE UNIT Locator (Component View)



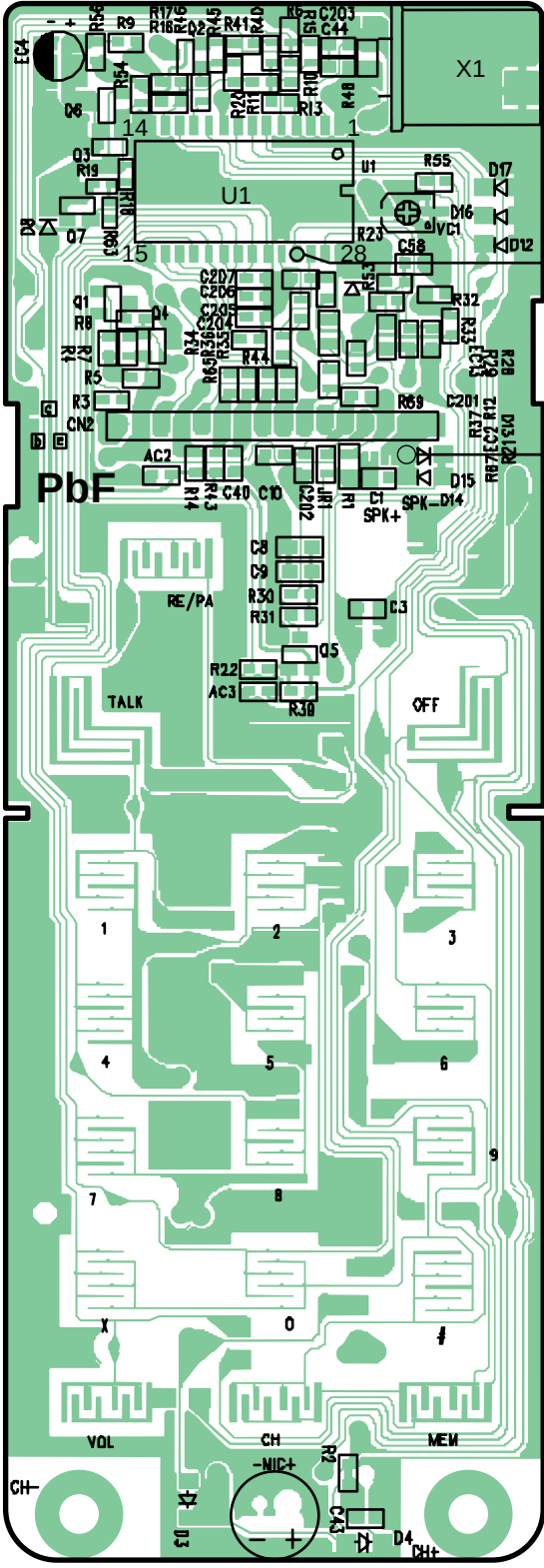
KX-TC1464LCB: BASE UNIT Locator (Flow Solder Side View)



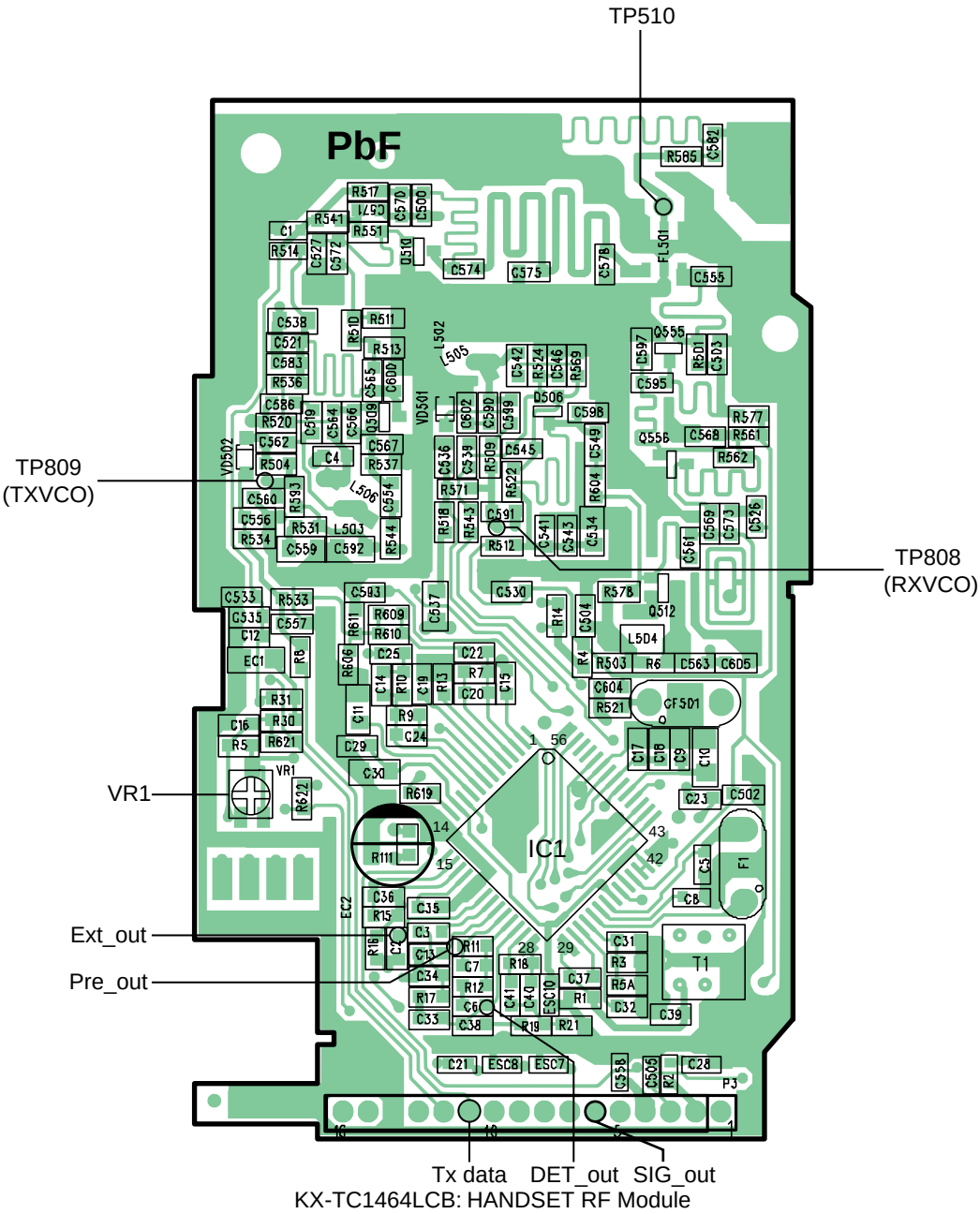
KX-TC1464LCB: BASE UNIT RF Module



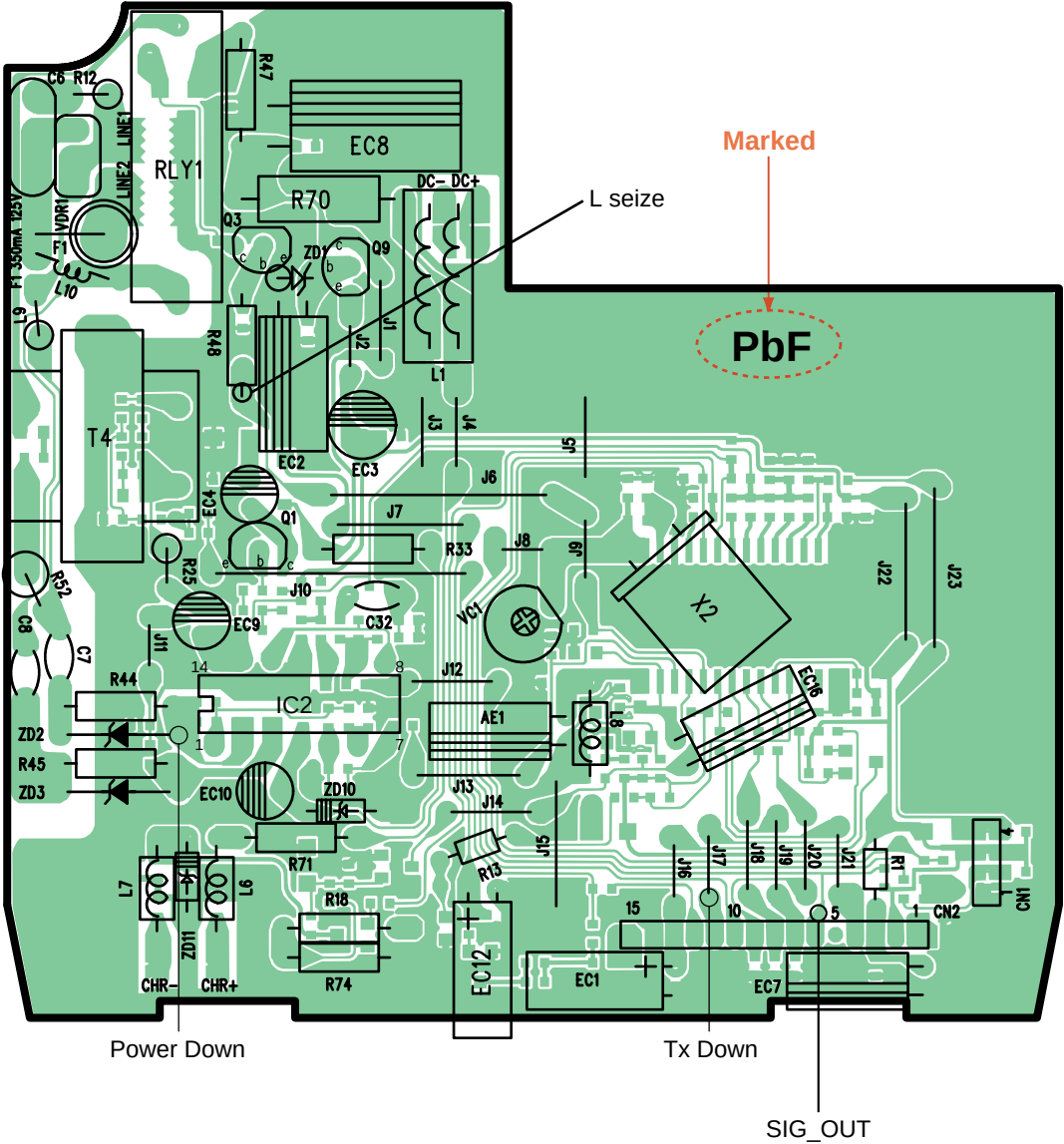
KX-TC1464LCB: HANDSET Main (Component View)

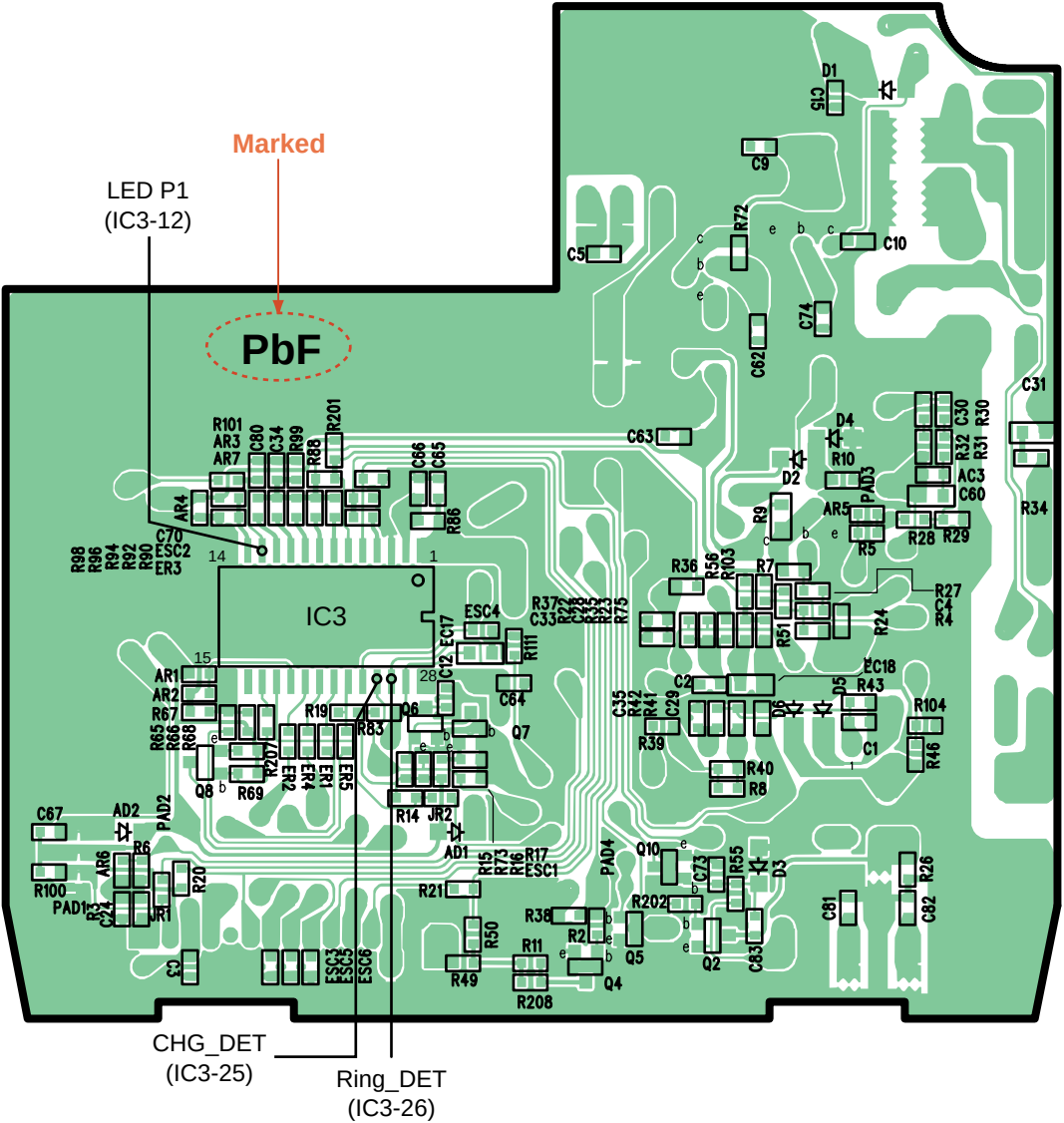


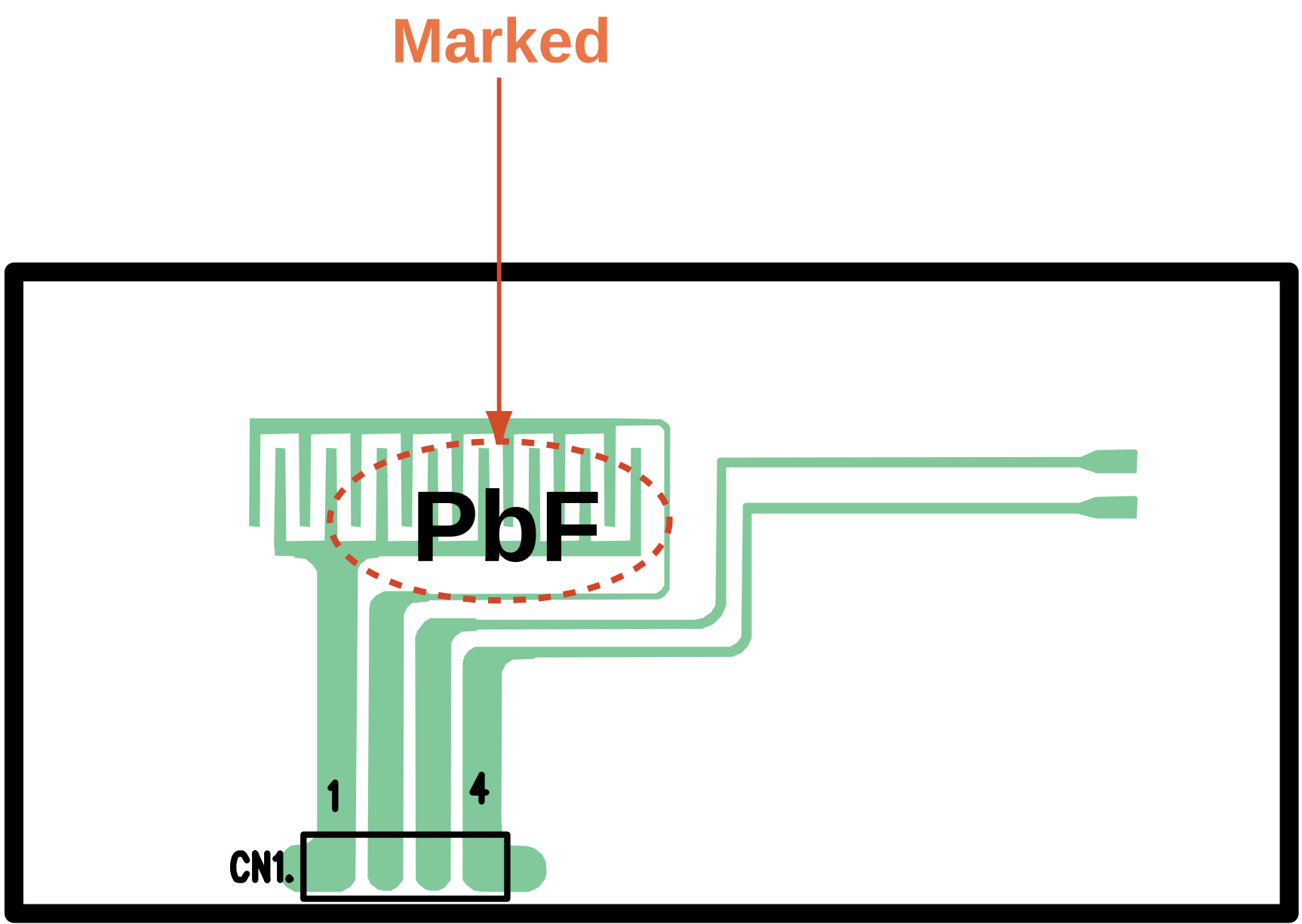
KX-TC1464LCB: HANDSET Main (Flow Solder Side View)

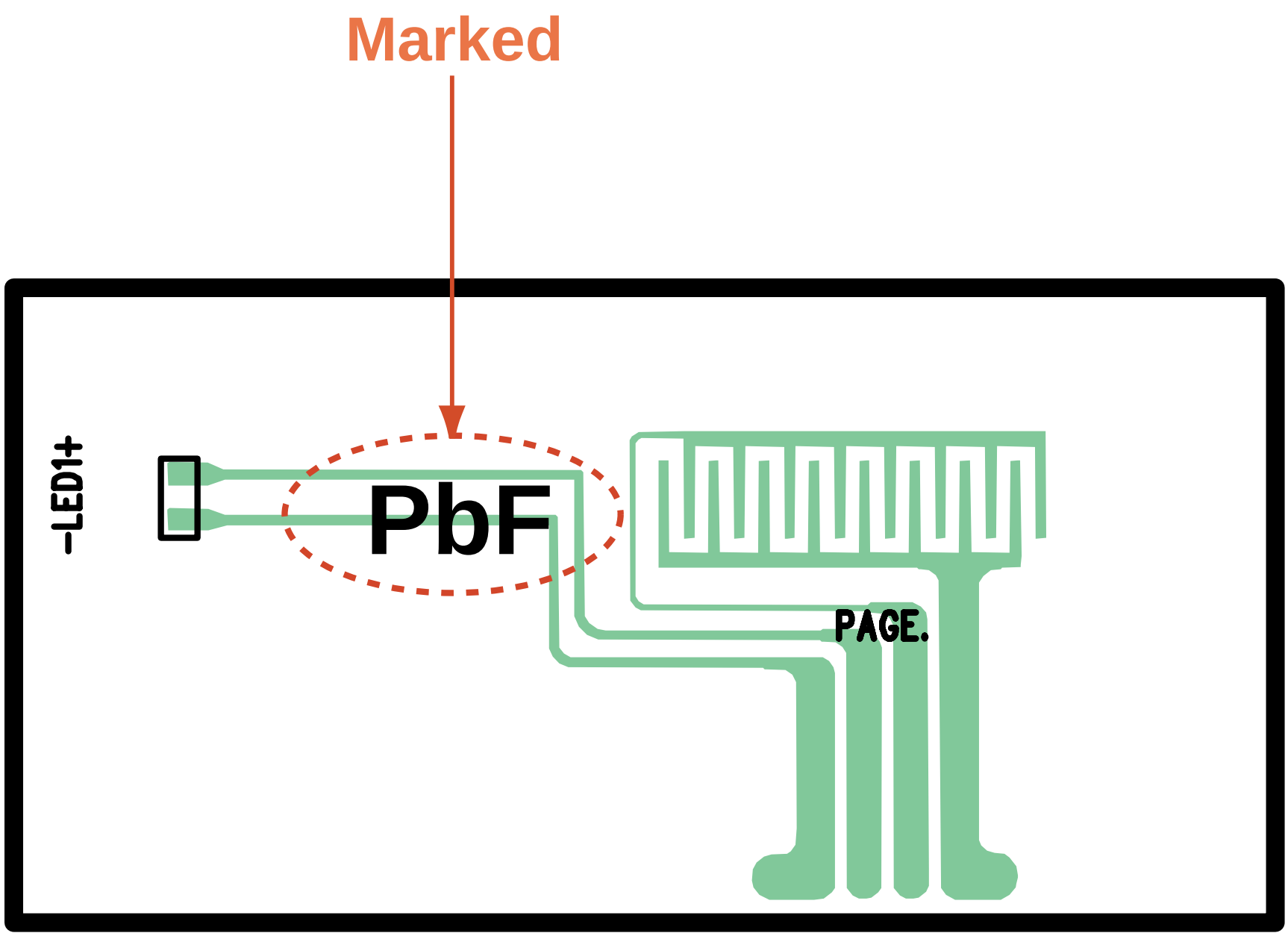


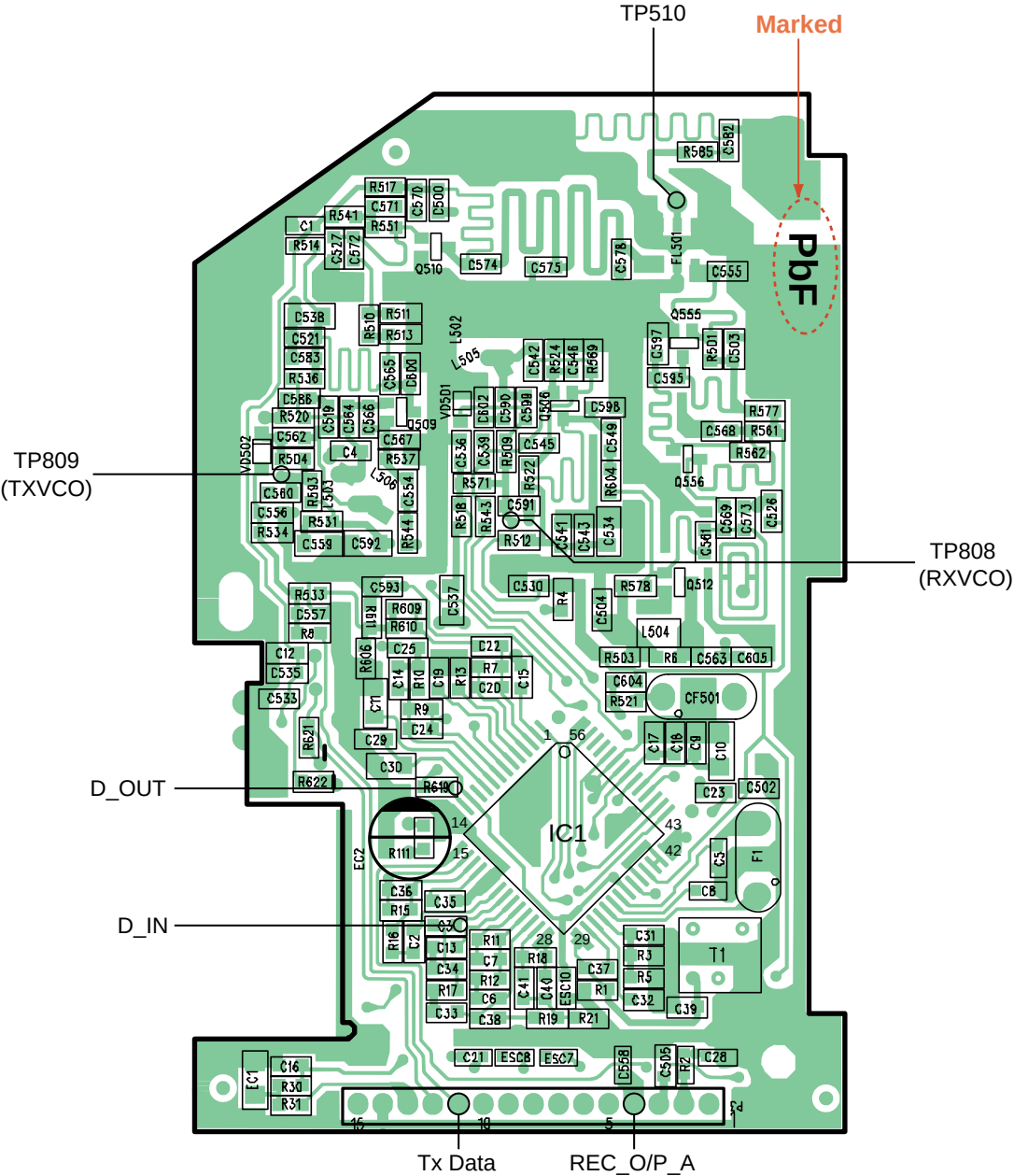
KX-TC1464LCB: HANDSET RF Module


Marked
L seize
PbF
Power Down
Tx Down
SIG_OUT
C6
R12
LINE2
LINE1
RLY1
VDR1
F1 350mA 125V
L10
L9
R47
EC8
R70
DC- DC+
Q3
ZD1
Q9
J1
J2
L1
R48
T4
EC2
EC3
J3
J4
J5
J6
J7
J8
J9
J22
J23
EC4
Q1
R33
R25
R52
C8
C7
J10
EC9
C32
VC1
X2
J11
R44
IC2
J12
AE1
L8
EC16
ZD2
R45
ZD3
EC10
ZD10
J13
J14
J15
R71
R13
L7
L6
ZD11
R18
R74
EC12
EC1
EC7
J16
J17
J18
J19
J20
J21
R1
CN1
CN2
CHR-
CHR+


Marked
LED P1
(IC3-12)
PbF
IC3
CHG_DET
(IC3-25)
Ring_DET
(IC3-26)


Marked
PbF
1
4
CN1.


Marked
-LED1+
PbF
PAGE.


TP510
Marked
PbF
TP809
(TXVCO)
TP808
(RXVCO)
D_OUT
D_IN
Tx Data
REC_O/P_A
IC1
T1
CF501
F1
L501
L502
L503
L504
L505
L506
Q510
Q509
Q555
Q556
Q512
VD501
VD502
EC1
EC2
ESC8
ESC7
ESC10